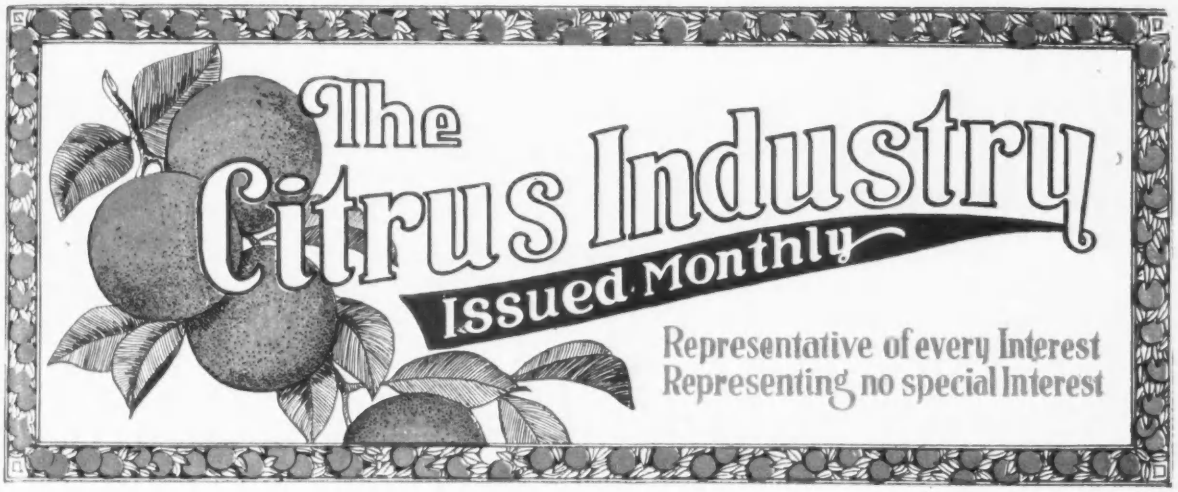

Vol 12, No. 8 TAMPA, FLORIDA, AUGUST, 1931 15 Cts. A Copy

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Year after year continues to be regarded as the outstanding publication in its field is because all of its news space is devoted to matter pertaining to the citrus industry.

Growers, packing house managers, in fact every group aligned with the industry read it for information—and find what they are looking for.

Authoritative articles on fertilization, spraying, soil analysis and and on all other matters bearing directly upon the job of developing the best fruit possible are to be found in each issue of The Citrus Industry.

All of which has developed a reader interest second to none in the exclusive field we cater to.

Advertising is almost invariably productive in direct proportion to the reader interest of the particular publication used—which accounts for the many Citrus Industry advertisers who have used The Citrus Industry for periods of five years or longer without missing an issue as well as the seasonal advertisers who have used this publication for even longer periods for their annual campaigns.

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Here's A Message From Corey!

TO THE FLORIDA CITRUS GROWERS:

I present below the reasons why every Florida grower should become a member of an association affiliated with the Florida Citrus Exchange:

1. It is the agency selected and financed by the U. S. Government to stabilize the Florida citrus industry.
2. It is a non-profit cooperative. Other shippers conduct business for the profits they can TAKE FROM the growers, the Exchange is operated by the growers for the profits it can MAKE FOR the growers.
3. An Exchange member shares in the marketing benefits of the valuable Seald-Sweet brand.
4. Its affiliated banking institution, the Growers Loan and Guaranty Company with its high standing in national banking centers and with government financial agencies, is able to render helpful service to associations and individual growers.
5. Its management is capable and aggressive.
6. It is the only Florida concern which can develop the by-products, frozen juices and canning business successfully for
   a. It alone controls sufficient production to assure the trade of their seasonal requirements for a high quality pack.
   b. It is a cooperative with the full protection of the Capper-Volstead Act, relieving it from the Anti-trust laws and enabling it to control distribution and fix a fair price level.

In commenting on the above reason, I believe the canning business will develop in a short time so that it will be second in importance only to the fresh fruit business. Under the control of the Exchange with power to eliminate cut-throat competition and establish high grades of pack, the state should be able to market over 5 million cases annually at a nice profit to the growers.

7. The Exchange has adopted a strong business program, the achievement of which will certainly assure
   a. A standard grade and pack.
   b. Elimination of green fruit shipments.
   c. Stabilization of markets for a fair and consistently profitable price level.

The Exchange, with its present percentage of tonnage, its earnest leadership and its strong program, is the best agency for the grower. **Your** fruit in **your** organization will fare better than in any other.

But to bring all the benefits of centralized control, we must have such a high percentage of the fruit as has enabled California to bring prosperity to its growers through a cooperative like the Florida Citrus Exchange.

If you are not a member of the Exchange, please fill out the attached blank and mail it to me in care of the Florida Citrus Exchange or hand it to an officer of the association in your vicinity.

We shall be glad to explain fully why it is to your advantage to become associated with us and the details of how this may be accomplished.

Sincerely yours,

M. L. Corey

MERTON L. COREY
Florida Citrus Exchange
Tampa, Florida

I wish additional information about Florida Citrus Exchange plans for stabilizing the industry, developing the by-products and canning business and forcing a higher price level for growers.

I herewith hand you the following data about my groves.

Name _____

Address _____

No. Acres Oranges _____

No. Acres Grapefruit _____

No. Acres Tangerines _____

The Citrus Industry
EXCLUSIVE SPECIALIZED CITRUS PUBLICATION
Issued Monthly
Representative of every interest
Representing no special interest

Vol. 12 TAMPA, FLORIDA, AUGUST, 1931 No. 8

Getting Results From The Educational System

By Theodore Macklin in California Citrograph

Matching demand with supply is a great problem in agriculture just as it is in all lines of industry. Satisfactory prices are the rewards for having nicely matched these two variables. Too little demand piles up a surplus and this breaks prices down. Too much production effort outruns demand with an unneeded supply and the excess forces prices down. These are inescapable results of causes that must be recognized to be properly dealt with. That growers and others today are in large numbers unwilling to admit these truths means that they are also unwilling to unite efforts in doing anything fundamental about them. To recognize in common these basic relationships, to believe them, and to act unitedly to correct the causes of the misfitting of demand with supply, are all matters of mobilizing understanding of facts, principles, and methods of utilizing them to best advantage under the circumstances. The task is a large one. It has not been tackled yet in a way to get results. It will require persistent attention by systematic study and thought, not only of leaders but of the mass of farmers as well. Doing this is education. For that we have today several agencies. Our problem as growers and those serving growers' best interests is to use these agencies to the limit for the work which they have been set up to accomplish.

Prof. Macklin, author of the following article, is an economist of note and author of a number of books on economics and cooperative marketing. For the past several months he has been working in California on his own initiative and resources attempting to interest groups of diversified agencies to cooperate in a unified plan to educate producers on the value of cooperative marketing of their products. This article, in a measure, states the problem and gives a remedy which Prof. Macklin is certain, if adopted, would do much to alleviate the farmers' ills.

Education in essence is to gain a vision in order to act and give to some real purpose with satisfaction to the individual in keeping with equal satisfaction to the community. These worthy objects cannot be realized unless mass action is guided by a strong current of thought, rooted deeply in the popular mind. If growers would arouse dormant democracy and put to work democratic institutions, such as the educational agencies, they could then build a popular mind which would lead them out of economic and business delinquency. Our present conditions are no more and no less than the penalties for relative incompetence. We can all become more competent by a program of well considered economic and business education.

There must come widespread popular recognition of the central problem, of essentials in dealing with it, and of methods for guaranteeing that these essentials will be provided. The central problem is striking a balance of demand and supply. This is a mutual task of production effort on the farm and other service effort between the farms and the consumers. It is, if you please, a teamwork job of both marketing and farm production. It means having the right quality of product in the right quantity, at the proper place at the right time. The grower has much to do with each of these four conditions. The marketing system also has much to do with them. Both together working in mutual confidence on their parts of the undertaking can get results. Education must get this knowledge across to the growers, not merely a few leaders, but to the whole crowd. It is just as vital that the mass know its part well as that the leaders know their parts well. That is why nothing short of real educational effort popularly supported and demanded can hope to get anywhere.

(Continued on page 28.)

Agricultural Problems

By J. S. Crutchfield, President, American Fruit Growers Inc.

An address before the Orlando Chamber of Commerce on August 4.

I appreciate very much the opportunity of discussing briefly with you today the agricultural situation and the workings of the Chamber of Commerce of the United States. I owe, to a considerable extent, my election to the directorate of the National Chamber to the splendid support of the Orlando and Orange County Chambers of Commerce, and the Florida State Chamber of Commerce. There were four candidates for the position and I won by a narrow margin. I happened to be the only representative of agriculture out of the forty eight members of the Board of Directors. Of necessity, therefore, the President of the Chamber was compelled to appoint me as Chairman of the Agriculture Committee as each committee of the Chamber must be headed by one of the Board of Directors. Having been elected under the Domestic Distribution Division, I was also automatically appointed Vice-Chairman of that committee.

Like Mrs. Owen, I feel that I am reporting to my constituency and therefore pass on to you this information so that you may avail yourselves of my services in either of these two important divisions of the National Chamber's activities.

A United States Senator in 1911 arose in his place and said, "I received this morning a telegram from the Chamber of Commerce in my city urging me to vote against the bill now before us, saying it would work a great hardship to the commerce of my State. This afternoon a telegram came from an association of business men in another part of the State urging me to vote for the bill, declaring it would greatly benefit our State and region". What does business think? To answer this question, President Taft and Secretary of Commerce and Labor Nagel in 1912 invited business men and representatives of their organizations to come to Washington and work out a plan by which government could get the advice and counsel of the business nation by means of a national clearing house of business opinion. Five hundred representatives of commercial organizations, trade associations, and individual industrial establishments responded and the foundation was laid upon which the Chamber of Commerce of the United States was erected. The service of the National Chamber is twofold. The primary function is to obtain the matured judgment of business upon National questions, and to present and interpret those views to the agencies of government and to the public. Of equal importance to its membership is the National Chamber's service function. This is the province of the departmental organization. Its expert staff is occupied throughout the year in study and research. The results of these activities are broadcast to the membership in bulletins, surveys and summaries. These data—authoritative literature of business—are kept current by continued observation and revision. The intent is to render the fullest measure of service, both to the public interest and the specific needs of the Chamber membership.

The National Chamber is absolutely democratic—in character. Once a year in annual meeting, accredited delegates may bind the National Chamber to a commitment of policy after a thirty day notice of such contemplated action has been given. The other method is to submit the questions to members for decision in referendum. The organization and workings of the National Chamber are so vast as to be almost beyond the comprehension of those of us who are actively a part of the Organization.

Theodore Roosevelt said the National Chamber would pay for the energy and money expended many times over if it did nothing more than focus the attention of business once a year on a single national question. He said, "Your referenda are both educative and useful in that they not only focus simultaneously the attention of 400,000 (now 902,622) business executives on a national question but they lay before Congress and the authorities in Washington the opinion of American business in regard to national problems affecting industry and commerce."

As many of you know the building of the National Chamber at Washington cost several million dollars. Net dues collected last year amounted to $1,490,000.00. Total operating expense amounted to $5,060,000.00. Organization members totalled 1580 with an underlying membership of 928,000. Individual membership 6,209. Association membership 4,555.

Agriculture has never, and is not now, taking its proper place in the affairs of the National Chamber. The very cream of leadership in all other industries however is there. Among other industries fully represented I might mention railroads, public utilities, chain stores, department stores, iron and steel manufacture, and every other important manufacturing indusry, bankers, publishers, lawyers, mining, agricultural implement manufacturers, and many others too numerous to mention. If they are there, they must be deriving some benefit. The fact is, they recognize that they cannot neglect being ably represented in this national business congress.

I recently attended my first Board meeting in Washington. Representing agriculture, I happened to come first on the list; and I agree that agriculture is of first importance. I tried to impress the representatives of the other industries with this fact. The new President, Mr. Strawn, is chairman of the Board of Montgomery-Ward & Co. He is also an eminent lawyer, and represents many of the leading railroads and industrial companies of the country. Among other things in his opening remarks he naturally referred to the plight of the railroads and their effort to secure relief. All very proper and pertinent. However, being the sole represenative of agriculture on the Board and being the first called upon, I reminded the Board that it would be impossible at this time, or at any time, to pass any resolution in the National Chamber unfair and adverse to the railroad interests. I pointed out that it was even of greater importance that the Chamber avoid taking any action unfriendly or adverse to the greatest and probably the most depressed of all our industries, namely agriculture; and stated emphatically that any action approving the increased freight rate applicable to agriculture would be considered and would actually be unfriendly and adverse to agriculture. I pointed out that while the railroads were suffering from acute depression during the past twelve months, especially, that agriculture had been for ten years going through a similar experience, and that unlike the methods of similar industries agriculture has no reserve to fall back on. The

(Continued on page 30.)

New Developments In Marketing Citrus Fruit Juices

By Harry L. Sexton in Valley Farmer

The advertising campaign inaugurated by the fruit and vegetable industries to "Eat More Fruit and Vegetables," sponsored by medical associations, dietitians, and the health experts of the federal departments, has been productive of far-reaching results, as is attested by the rapid increase in the consumption of both fruit and vegetables.

This health movement, which has as one of its slogans, "Drink More Fruit Juice" has resulted in the creation of a new industry which promises to take rank among the most important of those connected with agriculture and the distribution of foodstuffs, an industry which is still in its infancy, but which has enormous potentialities.

In development of the fruit juice industry, the United States Department of Agriculture has rendered extremely valuable service through its research and experimentation which has resulted in establishment of economical processes for the preservation of juice in such manner that it can be placed upon the tables of consumers without material loss of flavor or food value. The success of the Department's work in this connection is due largely to the ability of Dr. E. M. Chace, senior chemist of the Bureau of Chemistry and Soils, whose work in connection with the citrus fruit by-products laboratory in California has added many millions of dollars to the revenues of the citrus fruit industry of that state.

Thus far the work of the Department in connection with citrus fruit juice has been confined almost entirely to oranges and lemons, but with establishment of by-product laboratories in the lower Rio Grande Valley and Florida, the principal producers of grapefruit, the problems connected with the processing and distribution of grapefruit juice will receive the same attention from the Department as has heretofore been devoted to juices of other varieties of citrus.

The rapidly increasing popularity of fruit juices may be attributed to two causes — the advertising campaigns extolling their healthfulness, and the development of processes by which the original ripe fruit flavor is retained. The health claims for fruit juices are based on sound research showing the high vitamin content of the popular juices. Orange juice contains three vitamins, A, B and C, which are essential to proper nutrition, and grapefruit and lemon juices are extremely rich in vitamins B and C. Apple juice also has vitamins A, B and C, but in smaller quantities. Pineapple and tomato juices are equivalent to orange juice, and grape juice contains vitamines B and C.

Preparation of fruit juices without loss of flavor has commanded the attention of chemists for many years, and only in comparatively recent years have satisfactory processes been evolved. The original methods tried were those most familiar to preservers and depended upon heat. Some juices can be prepared in this way and retain their original fruity flavor, but in the case of citrus juices the usual heat method proved decidedly unsatisfactory.

Methods depending upon flash pasteurization are more satisfactory with most juices, according to a recent statement by Dr. Chace, who has devoted years to the study of the processing problems. This type of pasteurization consists of passing a relatively thin film of juice rapidly over the surface of the heating unit. A commonly used apparatus is a tube or coil of small diameter surrounded by hot water or steam. When the juice enters the coil it reaches the temperature of the heating medium almost instantly and need be maintained at the proper temperature for a few seconds only. It can be bottled while still hot. The temperature of water or steam, the length of the coil, and the rapidity of flow of the juice can all be used for controlling pasteurization. When it is advisable to cool the juice immediately after pasteurization, it can be passed directly from the hot coil to one surrounded by cold water or brine. However, the problem of getting cold juice into the final containers without reinfection by yeast or other organisms is one well-nigh impossible of solution under the usual commercial conditions.

The coil type of apparatus has the advantage of keeping the juice away from the air, and where sterilization can be carried on at sufficiently high temperatures, a part of the air dissolved in the juice is removed. As the juice is in motion while being heated, the danger of overheating the part in contact with the heating surface is almost negligible.

Another method of preparation which has found favor is the concentration of the juice under high vacuum. This method not only sterilizes the juice but removes the air and evaporates the liquid at temperatures considerably below its boiling point. Where the acidity of the juices is normal, there is not much loss of vitamins during pasteurization or concentration under vacuum. However, when concentrated juice is diluted for consumption it lacks much of the flavor and aroma of the original juice.

Several methods of sterilization which avoid the use of heat and the resulting off-flavors have been devised and some of them patented. One of these is the preparation of juices by treatment with ultra-violet rays. These rays have but slight power of penetration and vapor lamps are usually placed in the juice vats and the juice kept in constant motion so that all sides of all particles it may contain will receive the ultra-violet ray treatment. There is no doubt that this treatment will kill the organisms, but the problem of getting the juice into sterile containers without contamination is a difficult one. Dr. Chace asserts that the department has not yet demonstrated that the ultra-violet treatment of juices is successful, but is working to further develop the process.

There are a number of patents for treating fluids by passing electric currents through them, this being accomplished by running the liquid between a series of electrodes. The method is said to be satisfactory for use on milk, but not much is known about its use with fruit juices. There is also considerable controversy as to whether sterilization under this process is accomplished by the electric current or the heat generated.

Another set of methods employs gases under high pressure for sterilization. Carbon dioxide, oxygen and sulphur dioxide, the gas given off by

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Long Time Maintenance of the Productivity of Or= chard Groves

An Address by J. B. Abbott Before the Souhegan Valley Fruit Producers Association at Wilton, N.H., Which May Have its Application to the Owners of Citrus Groves.

My experience in the fertilization of crops and in the broader field of maintenance of soil fertility extends over a period of about 25 years and includes the territory bounded by the New England States on the east and Indiana on the west. The one outstanding lesson which has come out of that experience is that it is dangerous to concentrate upon the specific fertilization of any crop to the exclusion of the good agricultural practices upon which depends the long-time maintenance of a soil in productivity condition.

Experiments With Wheat

One of my earliest experiences was in connection with wheat fertilization in southern Indiana. I found that the farmers generally were convinced that 15 to 20 years of continuous use of fertilizer would ruin the land. As a matter of fact, their actual experience seemed to point to some such conclusion.

Further study of the situation developed the fact that about 1880 they began using straight superphosphate or a low grade complete fertilizer in amounts of 100 to 200 pounds per acre for wheat and, because of the great natural phosphoric acid deficiency of the soil, they got phenomenally good results. Increases of 12 to 15 bushels per acre were common. Knowing little about fertilizer, and apparently still less about soil fertility in general, these men jumped to the conclusion that fertilization was a panacea for all of their troubles and forthwith neglected such fundamenal matters of good farm practice as conservation of manure and crop residues, growth of legumes in the rotation, liming the soil, etc. They placed their entire dependence upon fertilization—and inadequate fertilization at that.

Naturally, as no effort was being made to replenish the organic matter supply of the soil as it was burned out by tillage operations, the soil soon deteriorated in physical condition. It puddled into a sticky mass when wet and baked about as hard as a brick when dry. Inevitably, with this very unfavorable physical condition wheat yields decreased. It is to be supposed that the larger yields induced by the highly phosphoric fertilizer which was being used removed supplies of nitrogen and potash from the soil more rapidly than would have been the case had yields been smaller, and this hastened the decline.

At the end of the decade, or two decades at most, fertilizer no longer produced the satisfactory yields that it had produced when first used. Some farmers felt they were being defrauded—that the fertilizer was no longer as good as it used to be. Others concluded that fertilizer worked like cement, hardening the soil and setting it together. Few of them apparently appreciated that their unsatisfactory results were due not to the fact that they used fertilizer but to the fact that when they began using fertilizer they practically ceased to do anything else for the maintenance of soil fertility and that such a practice will not work.

Same Principles Apply With Orchards

It may be a far cry from wheat in southern Indiana to apples in southern New Hampshire, but even so, I believe the analogy holds and that the man who gives all his attention to specific fertilization of the apple crop for immediate results without giving adequate attention to those fundamental practices of good farming which are necessary to maintain the soil in productive condition is riding for a fall.

Professor Anthony, of the Pennsylvania State College, showed me blocks of trees, when I was there last fall, which support this conclusion. So far as fertilization alone is concerned, those trees had been reasonably well treated, but the system of soil management followed had been such as to burn out the organic matter in the soil more rapidly than it was replenished.

The system was a so-called cultivation with cover-crop system. The orchard was cultivated during the early part of the season and sown to a cover crop, usually in July, but sometimes not until August. Under that system the trees thrived splendidly for 10 years or more, but then the shortage of organic matter began to make itself felt in terms of less friable soil, less successful growth of cover crops, lighter green color of the leaves, less new wood growth, and finally less fruit.

Soil Productivity Must be Maintained

Professor Anthony's method of showing what results have been secured is to take the visitor on a trip through the orchard and explain the cultural history of different blocks of trees. I can do no better than to follow his plan. The first plot to be considered is a block of trees that received clean cultivation without either cover crops or fertilizer, from 1909 to 1919. By 1919, these trees were the poorest in the entire orchard and the soil was notably hard and lifeless despite the fact that it is Hagerstown silt loam, which is a very good soil in its natural condition.

The next plot is a block of trees that has stood in sod with a light straw mulch, but without fertilizer, for the same period. By 1919, these trees were decidedly better than those on the first plot.

The next plot is a block of trees between which commercial nitrocrops with fertilizer were grown from 1909 to 1919, and a rye cover crop was sown each fall. By 1919, the trees on this plot were decidedly better than those on the second plot, averaging two and one-third inches greater in circumference and with an annual yield per tree 120 pounds larger. The first evidence of unsatisfactory conditions on the first plot, observable some time before the trees showed distress, was the obviously bad physical condition of the soil.

The next comparison, which throws more light on this problem, is a series of 16 plots of 12 trees each, every third plot unfertilized. These

plots have received annual cultivation with non-legume cover crops. During the first 10 years there was no observable difference in tree growth between the fertilized and unfertilized plots, but by 1925 one of the untreated plots showed signs of slowing up in growth; it showed particularly a lighter leaf color. The dry seasons of 1928, 1929, and 1930 have accentuated the difference between fertilized and unfertilized plots and now each unfertilized plot is very definitely slowing up in growth.

Now to go back to the third plot we considered—the one that was inter-cropped with fertilizer until 1919 with a rye cover each winter. The inter-crops were discontinued in 1920 because the trees had become too large; and complete commercial fertilizer was used for the trees in place of the fertilizer previously used on the inter-crops. Mixed legume cover crops were sown each summer.

Cover Crops Play Important Role

Adjoining this plot is another which has had annual cultivation with a mixed cover crop but no fertilizer for 22 years, which is essentially the same treatment as was received by the checks in the fertilized series, except for the fact that the cover crop contained some legumes. In 1930, for the first time in 22 years, pronounced difference was observable between the fertilized and unfertilized plots. Professor Anthony believes that it is fair to assume that this is not a direct effect of the fertilizer on the trees, or it would have appeared before the end of 22 years. He believes the difference is an indirect result of fertilizer through the larger yields of cover crops on the fertilized plots and consequent better maintenance of the supply of organic matter in the soil.

If this is true, and I believe it is, it would seem to follow that one must consider the plant food requirements of the cover crop as well as of the trees in an orchard fertilization program. The plant food requirements of the cover crop and of the trees are not necessarily the same, since many cover crops are relatively shallow rooted and of restricted feeding range, whereas the trees root deeply and have a wide feeding range. Cases certainly do occur in which a specific plant food element gives little or no measurable direct response in tree growth for many years, yet gives an immediate response in cover crop growth. And the necessity for good cover crops is a demonstrated fact.

It so happens that the soil with which Professor Anthony is working shows a marked response to phosphates with respect to cover crops, but thus far shows no response to potash. In the case of lighter soils a pronounced response to potash, especially in the case of clover, is to be expected in addition to the rather general response to phosphate.

Professor Anthony Quoted

At this point I want to quote Professor Anthony directly:

"Where we have not used a combination of nitrogen and phosphorus, our cover crops have been unsatisfactory and our untreated plots are now approaching the condition of the plot we discussed first, where no cover crops were grown. The soil is becoming hard, it puddles readily, and washes where there is any slope. With one exception, in this orchard every plot which has received annual cultivation since the planting of the orchard and grown unfertilized cover crops is now definitely declining, both in tree growth and in yield.

"These cover crop differences are not of recent development. Some began to show very soon after the planting of the orchard. By 1919 the present range of differences was fairly well established. I have plotted the cover crop performance in this series of fertilizer treatments for 1919 and 1920, and compared to this the cover crop during the period from 1919 through 1929. With the exception of two of the check plots, the record 11 years ago is very similar to the total record of the years since 1919. In order to find the effect of these cover crop differences upon the trees, we made a study of the trunk circumference increase through 1929, the average yield during 1928 and 1929, the total yield throughout the entire history of the orchard and the branch growth of the trees in 1929. I have put all these records together in order to give a picture of plot performance in both tree growth and yield. When this is plotted with the cover crop record of 1919-20, we see that here, also, there is a close correlation. In other words, as the cover crop grew in 1919-20, so the trees themselves are growing and yielding in 1929-30.

"We have here the reason for the slow effect of our fertilizer applications. Certain fertilizers have grown more cover crops. Turning under heavier cover crops has improved the land. Improving the land now, 10 years later, is growing better trees. To go from the first difference in cover crops to the ultimate difference in trees may take 15 or 20 years. It has become one of the tenets of our horticultural faith that we do not need to wait this long but can judge any system of orchard management in the cultivated orchard by its effect upon the cover crop rather than waiting to see its effect upon the trees."

Organic Matter Supply Resists Drought

Without doubt the most striking thing I saw on my last visit to Professor Anthony's orchards was the comparative growth of cover crops at the end of the dry season of 1930 on plots in which the organic supply had been well maintained in comparison with plots where it had not been well maintained. In the case of the plots which have been fertilized and sown to a cover crop about mid-summer each year for the past 22 years, the cover crop in 1930 did not make a satisfactory growth while in the case of plots which stood in sod up to 1925 and have been sown to a cover crop every summer since, the cover crop in 1930 made a satisfactory growth despite the drought. The reason, without doubt, is to be found in the higher organic matter content resulting from the heavy sod that was plowed under five years ago.

Samples of soil taken two days after a heavy rain that followed a dry period last May showed 42 tons of water per acre more in the plowed surface of the plot which had the sod turned under five years ago than in the plowed surface of the cover crop plots.

Professor Anthony makes the point, and I think it is well taken that the result might have been different had the cover crops been sown a month or six weeks earlier each summer so as to make a larger growth. But the facts remain that the practice which was followed, seeding cover crops about mid-summer, is a common commercial practice and that at the end of a 22-year period it has proven to be a failure as compared with a system which provided more organic matter.

From this has developed the belief that it would be good management to alternate periods of sod with periods of clean cultivation with cover crops. Leaving the orchard too long in the sod is likely to prove disastrous because of the virtual impossibility of getting nitrogen by the grass roots to the tree roots. The ability of a dense grass sod to absorb nitrogen from the soil and transform it into protein is well understood. Plenty of cases have been reported in which grass has utilized more than 200

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The Citrus Industry

with which is merged The Citrus Leaf
Exclusive publication of the Citrus Growers and Shippers

Address all communications to the Main Office
1123 Florida Avenue
Tampa, Florida
Telephone ____ 4819

Published Monthly by
ASSOCIATED PUBLICATIONS CORPORATION
Tampa, Florida

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Subscription, $1.00 per year in advance

Entered as second-class matter February 16, 1920, at the post-office at Tampa, Florida under the act of March 3, 1879.

Branch office and production plant, Bartow, Florida.

NEW YORK OFFICE
118 East 28th Street
Edwin F. Ripley, Manager

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RAISE HIGHEST QUALITY FRUIT AND MINIMIZE YOUR TROUBLES

Despite every other problem which confronts the citrus grower in Florida today—and there are many—one of the most important is the problem of producing fruit of superior quality.

Fortunately this problem is one which in very large measure may be solved by the individual grower.

Any grower who is so minded can, through the proper attention to his trees, not only improve the quality of his fruit but through intensive attention to his grove, increase the volume of his crop.

And under any conditions the demand for and the price of superior quality fruit invariably brings a return to the grower which always repays him for the additional care and investment required to produce such high quality fruit.

This is true when marketing conditions are anything but ideal and despite any handicaps established by man or Providence. And in seasons when conditions are favorable it is doubly true.

So the grower who cuts down on his fertilization, or who fails to spray his trees when they need it is automatically taking potential profits out of his own pocket.

It might be stated with equal truth that the temptation to use inferior grades of fertilizers or sprays, when products of known and proven worth cost but little more, frequently brings results that are unsatisfactory.

When all growers base their production costs upon the yield per box instead of figuring it upon the basis of cost per ton, per gallon or per hour, the matter of producing quality fruit will be given the serious consideration it deserves by all growers—with the resultant increase in profits which is certain to come.

The development of the canning industry is making it easier to bring a larger portion of the growers' market crop into the quality class, but the process is not automatic. The grower must **do his part.**

NO REAL OCCASION FOR PESSIMISM

There are those who are disposed to take a pessimistic attitude regarding the future of the citrus industry.

Such an attitude, we believe, is entirely unfounded.

While it is true that the industry has gone through a period of stress in recent years, comparison of conditions and returns in the citrus industry made with most any other industry or enterprise of like magnitude gives the citrus grower much to be thankful for.

Take the western farmer, for instance, or the cotton grower, or the oil producer or virtually any industry you may choose and a comparison of conditions should provide occasion for at least a moderate measure of gratitude.

The citrus industry is one of nature's monopolies. Florida, California and Texas produce and control virtually all of the citrus fruit of this country. The nation as a whole is consuming citrus fruit as it never did before. If it were not for fear of appearing trite, we would say that the nation is citrus-minded today in a degree that it has never been before.

And taken as a whole the citrus grower has suffered less from this world-wide depression than has your grocer, your merchant or the manufacturer.

People everywhere always cater to their stomachs. Oranges and grapefruit are no longer classed as luxuries. They are, in this country, at least, looked upon as table necessities. And with increased advertising in prospect, will be regarded even more necessary.

The citrus pessimist who really wants to abandon his grove in favor of some other enterprise will find it easy to trade his grove for much larger acreage in any of a dozen farming states.

Fertilizer sales in the Southeastern states are said to be 20 per cent below sales at this time last season. It is to be hoped that citrus growers will not attempt to economize on fertilizers at the expense of their crop—this year and next.

Present indications are for a greatly reduced crop compared to last season. Growers can, if they will, make up in quality for much of the loss in quantity.

A heavy bloom does not necessarily mean a heavy crop. There's many a slip 'twixt the bloom and the box.

It is cheaper to buy fertilizers and sprays at the beginning of the season than to pay freight bills after the fruit has sold at a loss.

Quality fruit demands adequate plant food. Fine appearing fruit demands eradication of the disfiguring bugs.

If we are to have another big crop, let's do our part to make it a BETTER crop.

Are YOU one of the growers who are getting top price for fancy fruit?

A Future For Small Tropical Fruits

By Charles H. Steffani, County Agent, Homestead, Florida.

Horticulturally, has South Florida taken advantage of the opportunities that have been placed before us?

Through the Office of the Foreign Seed and Plant Introduction of the United States Department of Agriculture, practically all of the world's tropical fruits have been distributed into South Florida. It seems almost a calamity that at least our door-yards should not be filled with a great number of the tropical fruits, that are useful for home consumption if not commercially.

By door-yards, I do not mean a fifty foot lot with a house on it, although such places are alright for a few rare palms and flowering plants or shrubbery. Throughout the Southern part of South Florida, there are homes where from five to twenty acre groves of citrus or avocados and mangos are growing where ample space around the house is available for a great variety of tropical fruit trees such as Achras Sapota (Sapodilla) the chicle tree of Mexico. This handsome tree with brown fruits the size of apples and consistency of brown sugar are certainly in demand on the local markets.

Casimiroa edulis (White Sapota) from Mexico and a distant relative of the citrus family, a green fruit the size of a large apple with a bitter-sweet flavor when ripe, only has to be put before the public to find a ready market.

Lecuma Nervosa (Egg-Fruit) is a small handsome tree with fruits the size of a peach and consistency not unlike the yolk of a hard boiled egg.

Eriobotrya Japonica (Loquat) a small handsome tree commonly called the Japanese plum is not unknown to a good many but few seem to be planted at least not enough to be noticed greatly on local markets.

Spondias Cythrea (Cheitie Apple) a tree with cluster of golden yellow apples, good for making pies or preserving.

Tamarindus Indica (Tamarind) a tree bearing a cluster of fruits with astringent flavor used for making a refreshing drink.

Macadamia Ternifolia (Queensland Nut) a handsome foliage tree from Australia, bearing a good sized one kernel nut with a hard shell and flavor not unlike the Brazil nut.

Melicocca Bijuga (Spanish Lime) a small fruit the size of a plum, with edible acid pulp covered with a thin shell, cultivated throughout the West Indies, and South America for its edible fruits.

Myrciaria Cauliflora, Garcinia Livingstonii, Averrhoa, Carambola, Litchii Chinensis, Blighia Sapida, Ceretonia Siliquea, Cecropia Palamata, and other useful fruiting trees that would be useful for preserving or as a fresh fruit eaten out of the hand.

The well known fruiting shrub or small tree, Annona squamosa (Sugar Apple) and Annona hybrids are certainly deserving of more attention when its delicious fruits are in demand on the market.

Carissa Grandiflora (Natal Plum) this beautiful shrub with sweet scented star like flowers and handsome sub-acid, red fruits that make excellent jelly resembling raspberries and sauce not unlike cranberries, is deserving of a space for a hedge around anyone's place.

Eugenia Jambo (Rose Apple) a tree or large shrub with yellow fruits two inches in diameter, suggesting the flavor of crushed roses, used for preserving or candied.

Eugenia Uniflora (Surinam Cherry) its dark evergreen foliage and showy red fruits are useful for jellies, jams or sherberts or delicious to eat when thoroughly ripe.

Flacouritia Ramontchi (Governor's Plums) a large shrub or small tree bearing sweet black plums like edible fruits, good for jelly making.

Strychnos Spinosa (Kaffir Orange) a large shiny green leaved spiny shrub, bearing hard shell green fruits the size of oranges, the pulp being used to make an astringent drink, and large flat seed, contain a form of strychnine.

Punica Granaturn (Pomegranate) an ornamental shrub with scarlet flowers and large red fruits with small seed, and red acid pulp, eaten out of hand or making a refreshing drink. The rind contains tannin, and is used in the manufacture of Morrocco leather.

I might go on and mention numbers of others that are fruiting plants such as Monstera Deliciosa, Eugenia, Ziziphus Mauritana, Carrissa Carandas, Antidisma bunius, and not mindful of the fact that as well known as the papayas and guavas may be, we certainly should have more planted.

We should not overlook the great variety of ornamental trees and shrubs that could be planted. We of South Florida pride ourslves on living in a Tropical Country, why not have the Southern part of this great state a real tropical aboratum, so that the future generation who, in the not far distant future, will be taught tropical horticulture in the University of Miami, and the University of Florida, will have the benefit of seeing the rare plants of the tropics and point with pride at the far sightedness of their forefathers in getting these plants established for their education.

GROWERS URGED TO SCATTER FRIENDLY FUNGI IN GROVES

The early introduction of friendly fungi into citrus groves to help control whiteflies and scale-insects is being urged by Dr. E. W. Berger, entomologist of the State Plant Board. Dr. Berger says that the fungi will thrive, now that the period of summer rains has arrived, and the earlier they are introduced into the grove, the longer they will have to grow and spread, and the more efficient will be their work in controlling the pests.

Certain of these whitefly fungi are raised and distributed by the State Plant Board, and the entomology department now has a nice supply of red aschersonia, or red whitefly fungus, available for distribution. A culture, sufficient for treating an acre of trees, can be obtained for one dollar, the cost of production. Directions for distributing the fungi will accompany each culture.

When writing advertisers please mention THE CITRUS INDUSTRY.

IMPRESSIONS

By the Impressionist

The West Orange Citrus Growers Association at Winter Garden is the newest addition to the Florida Citrus Exchange. It will open for business next autumn under the management of Harold Tilden, of the well known family of that name at Tildenville.

The new association has taken over the excellent packing house at Winter Garden of S. J. Sligh & Co. of Orlando; and from this results a most unusual arrangement. The association will pack for itself and ship through the Exchange the fruit of the Tilden and Sadler families, a most important tonnage, and that of other nearby growers. In addition it will pack for S. J. Sligh & Co. owned or purchased fruit under the veteran Jeff Sligh's well known Elk brand, which fruit will be marketed by Sligh & Co. for itself.

Quite shortly, on August 29, we will celebrate the sixteenth anniversary of the completion of the first long-distance telephone line across the United States from East to West. Since then, with the further perfecting of long-distance telephone communication and the development of radio, how cheap, and plentiful, long-distance talk has become.

Thinking back that way makes the 1913-1914 season of disastrous citrus prices seem away back in medieval history.

R. U. Listening, publisher for many years of a fruit paper in Michigan recently retired, and occasioned some excitement by depositing two million dollars cash in a bank at Coral Gables, Florida, where he expects to live out the balance of his years. "My success," said Mr. Listening, "has been due to painstaking effort, unceasing diligence, rigid economy; and the death of an Uncle who bequeathed me two million dollars."

The part which price plays in stimulating demand or curtailing consumption was aptly illustrated in the recent inauguration of the sixty cent meal in Childs restaurant chain in New York. "Eat all you want for sixty cents" was the offer. It took; and was a pronounced success. The most interesting feature was that on the first day of the new order of things the supply of grapefruit juice ran out before the day was half over. Evidently a lot of folks like grapefruit juice, if they can get it at reasonable cost. Prior to this Childs bargain offer, New York restaurants got from fifteen to fifty cents a glass for grapefruit juice, according to their class; and sold quite a bit at that.

And Earl G. Dezell is dead. His passing will be a decided blow to the California Fruit Growers Exchange, of which he has been the general manager since the passing of the late G. Harold Powell. Earl Dezell was an outstanding man, of recognized acheivement. Beginning his business career in the Exchange offices at Los Angeles as an office boy, he attracted Mr. Powell's attention; and rose rapidly. Five years or more before he died Mr. Powell confided to his associates that he had picked and was training Earl Dezell to be his successor. When, after nineteen years at the helm of the Exchange, G. Harold Powell passed on, Earl Dezell stepped into his shoes; and the big cooperative went right ahead operating according to the Powell ideas. The soundness of those ideas is attested by the great success of the growers' shipping organization during this extended period.

Wasn't it in Letters of a Self Made Merchant to His Son that the old man said: "any business is but the shadow of some man."?

Our two most noted fishermen in the citrus business in Florida are E. DeWitt Dow, traffic manager of the Florida Citrus Exchange and J. R. Crenshaw, traffic manager of the American Fruit Growers Inc. Traffic experts are funny that way. But both have quit; and it is said they have quit for good. It is a queer story, or rather two queer stories. Yet, can any fishing story be called queer?

Mr. Dow's change of habit, it is said, was due to a somewhat remarkable experience he had while fishing alone in Lake Butler using a borrowed boat. He ran out of bait, so baited his hook with a frog which was in the boat. In a few moments he got a heavy strike, and hauled in a water moccasin. It had only partly swallowed the frog; and not wishing to quit just yet Mr. Dow extracted the frog. To placate the snake's hurt feelings, Mr. Dow, so our reporter says, poured down the snake's throat a good stiff drink from a partly filled jug of 'shine which he had found on the floor of the boat; and then threw the snake overboard. A few moments later he heard a somewhat muffled, yet distinct, knocking on the stern of the boat. It was repeated several times. Crawling back to the stern and looking over, there he saw the same snake with another frog in his mouth.

Mr. Crenshaw's reform, so it is said, was due to an unusual experience he had while fishing in Lake Jessup. Mr. Crenshaw likewise was alone; and likewise was using a borrowed boat. He discarded an apparently dead minnow, and it dropped into the bilge water in the bottom of the boat, which bore a distinct odor of "moonshine," doubtless resulting from careless conduct by some earlier users of the boat. Later running out of bait, Mr. Crenshaw was astonished to see that the apparently dead minnow had come to life and was swimming around strongly in the bottom of the boat. So, baiting his hook with this minnow, he cast it out. In less than two minutes he had a heavy strike and pulled in a nine pound bass. But when he started to unhook the bass he found that it hadn't been hooked at all; but the minnow had it firmly by the throat.

The experiments up at Howey with storage of citrus in vacuum tanks is a matter of general interest in Florida. We regret to learn that the contents of two of the three tanks have "gone bad" and the tanks have been drawn. The other tank, so we hear, is still holding up.

(Continued on page 25.)

BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc. *Edited by The Growers Service Department*

LEAN YEARS BEHIND BETTER YEARS AHEAD

Making the principal address at the annual banquet of the Florida Grape Growers convention in Orlando upon July 15, J. S. Crutchfield, president of the American Fruit Growers Inc. and director of the United States Chamber of Commerce representing agriculture, told his hearers that in as much as American agriculture has had the worst of it during the past ten years there is every reason to believe American agriculture is due to have the best of it during the next ten years.

In support of that statement he cited the fact that agriculture today is more nearly deflated than any other American business. He predicted lower costs of agricultural production, and cheaper transportation because of more transportation of various kinds.

On the other hand he cited the continuing larger consumption of fruits and vegetables by the public, leading publicists and food specialists, as well as the food faddists, preaching constantly for the larger use of fruits and vegetables in the ordinary diet.

"Russia was not the originator of the 'five year plan,' " said Mr. Crutchfield; we have been preaching for years that our success as fruit raisers cannot be judged by the unusually good prices or the unusually bad prices of one year, or of two years, but should be judged on a five year average of prices and earnings."

American agriculture never has been fully understood by the membership of the United States Chamber of Commerce, he said; and American business needs to understand American agriculture.

Expressing himself as amazed and delighted by the wonderfully fine grapes displayed at the convention, he said that even if further experi-

(Continued on page 2.)

J. S. CRUTCHFIELD HERE ON BUSINESS MISSION

J. S. Crutchfield, Pittsburgh, president of the American Fruit Growers Inc., arrived in Orlando July 14, and is making an extended stay in Florida.

He is taking the opportunity of renewing old acquaintances and contacts, and familiarizing himself with the details of Florida operations, by officially substituting for R. B. Woolfolk, vice-president, who is making use of this opportunity to obtain a much needed vacation.

Mr. Woolfolk a few days after Mr. Crutchfield's arrival left for White Sulphur Springs for a rest. His further vacation plans were somewhat hazy; but in all probability he will include attendance upon the Apple Convention in his travels before returning to Florida.

PACKING HOUSE MEN MEET IN ORLANDO

A number of the packing house men of the Florida Division of the American Fruit Growers Inc. met with President J. S. Crutchfield and C. N. Williams, citrus sales manager, in the Orlando offices on August 3.

After very interesting discussions of various phases of technical operations, President Crutchfield outlined to those present the very excellent position of the American Fruit Growers Inc.; its continuing growth, and ever expanding usefulness to the fruit and vegetable industry.

It was an interesting and most profitable meeting; and will be followed soon by another, at which it is hoped to have present more of the packing house men in Florida, as they return to the state from vacations and summer duties.

Among those present and participating were T. S. Kirby, Fort Pierce; S. D. Gaines, Wabasso; E. B. Lytle, Weirsdale; Clay Binnion, Winter Haven; Paul Rogers, Maitland; Walter Merrill, Lakeland, J. E. Powell, Avon Park; N. H. Harper, New Smyrna; A. G. Warn, Haines City; Frank P. Beatty, Cocoa; D. A. Field, Ocoee; J. W. Parker, Walsingham; B. W. Flood, West Frostproof; G. D. Wing,, C. W. Rodgers, J. R. Crenshaw, C. R. Pilkington, J. A. Byington, C. N. Williams, Orlando; J. S. Crutchfield, Pittsburgh.

ORLANDO GIVES WELCOME PRESIDENT CRUTCHFIELD

The dinner of the Orlando Chamber of Commerce on August 4 was the occasion of an unusual welcome to President J. S. Crutchfield of the American Fruit Growers Inc. In introducing him to the gathering J. Thomas Gurney, past president of the Orlando chamaber, emphasized the fact that Mr. Crutchfield's advent into the fruit business had been made in what was then part of Orange county; and that he had long been well known here.

In compliment to Mr. Crutchfield, two of his old time friends were seated with him at the speaker's table. These were S. J. Sligh, and A. C. Marshall, long prominent in the business affairs of Orlando, and intimate associates of Mr. Crutchfield in the days before the Big Freeze.

In later speaking to the membership of the chamber, Mr. Crutchfield paid sincere tribute to the support recently given him by Florida chambers of commerce which resulted in his election to the board of directors of the U. S. Chamber of Commerce, upon which board he now sits, as the single direct representative of agriculture.

Mr. Crutchfield's talk was received with great attention, and warmly applauded. At the conclusion of the meeting, he was greeted personally by many of the members, and made welcome upon his present stay in Orlando.

Adv.

BLUE GOOSE
NEWS
OF INTEREST to the citrus growers of Florida, each month, contained in four pages of paid advertising from the
AMERICAN FRUIT GROWERS INC.
Florida Division
Sixth Floor, State Bank Bldg.
ORLANDO, FLORIDA

WENATCHEE, WE APOLOGIZE

From a long distance away comes a letter. Firstly, it specifies how the writer looks forward to reading Blue Goose News each month. That puts the editor in the proper good humor. Then it gently, very gently, deplores recent mention in these columns of headquarters of the Northwestern Fruit Exchange as being in Seattle. Isn't it true they are now, and have been for the past few years in Wenatchee, the "Apple Capital of the World?" That is right. Our mistake. Wenatchee, we apologize for a slippery memory; and no offense meant.

For the benefit of Florida readers, Wenatchee is located in the State of Washington.

REMARKABLE GROWTH

Th brief filed with the Interstate Commerce Commission by E. S. Briggs of the American Fruit and Vegetable Shippers Assn. in protest against the proposed general raise in railroad freight rates is a masterful document, which well sets forth why fresh fruits and vegetables should be immune from any further increases in carrying charges.

It is of further interest in revealing the very remarkable growth of the perishable shipping industry in the United States within recent years, a fact not accorded general recognition even among those engaged in perishable production or handling.

This is the only industry, according to Mr. Briggs, which delivers to the carriers for handling in both lean and fat years a constantly increasing amount of tonnage.

It grew from 663,447 carloads in 1920 to 1,070,445 carloads in 1930. The average tons loaded per car have increased, rather than decreased, during the past few year. It is also pointed out that the perishable traffic for export increased by approximately 1,398,560 packages in 1930 over 1929.

The brief further states, "According to the 44th annual report of the Interstate Commerce Commission, the total movement of fruits and vegetables during the period November 1, 1929 to October 31, 1930, amounted to approximately 2¾ per cent of the total carload movement of all commodities; and the total revenue to the railroads thereon equals approximately 6½ percent of the total revenue from all commodities."

Truly these are remarkable strides. Why even in 1920 everybody thought that the perishable business was a mighty big business; and doubtless many considered it had then reached its peak of production.

GROWERS MEETING AT MIMS IS INTERESTING

A meeting with a number of citrus growers in the vicinity of Mims, in Brevard county, was held on the evening of July 24, under the auspices of the Brevard Packing Co. at that place, which under the able management of Frank P. Beatty packs the fruit of the growers of that community using the marketing services of the American Fruit Growers Inc.

J. S. Crutchfield, Pittsburgh, president of the American Fruit Growers Inc. was introduced to those present by Phil W. Roberts, president of the Brevard Packing Co. Mr. Crutchfield's informal remarks were heard with close attention; and the gathering was a pleasant one.

WILLIAMS LEAVES FOR SUMMER CONVENTION

C. N. Williams, citrus salesmanager of the Florida Division of the American Fruit Growers Inc. has left to attend the Apple Convention, the great mid-summer gathering of fruit and produce men from all sections of the United States, which this year is being held at French Lick Springs, West Baden, Indiana.

There he will be in contact with leading sales representatives of the AFG organization from various sections, who will meet under the leadership of William H. Baggs, general manager of the American Fruit Growers Inc., as well as contacting leading trade factors of the country.

Because of pressure of work at Orlando, Mr. Williams is expected to return to Florida after visits to only a few of the principal citrus markets. Allen E. Wilson, assistant citrus salesmanager of the Florida Division, is expected to make an extensive round of the citrus distributing centers in preparation for next sesaon's selling activities.

LEAN YEARS BEHIND BETTER YEARS AHEAD

(Continued from page 1.)

menting was necessary to get the very best varieties, root-stocks, etc., Florida grape growers should not be worried nor discouraged. The Pacific Northwest, he said, had been compelled to rebud practically all its apple trees to get just the right varieties, before it embarked upon its large and substantial success in apple production.

KLEMM NAMED EXECUTIVE WINTER HAVEN GROWERS INC.

R. B. Woolfolk, newly elected president of Winter Haven Growers Inc. at Winter Haven, packers of the celebrated Belle of Winter Haven brand of citrus fruits under the Blue Goose trademark, recently announced the selection of A. R. Klemm, well known Winter Haven grower, as executive vice-president of the packing organization in active charge of its operations.

Clay Binnion, long connected with the American Fruit Growers Inc. Orlando offices, and a citrus man of many years experience has been selected as manager of Winter Haven Growers Inc. and has assumed his duties there.

Recent newspaper reports covering these personnel announcements of Winter Haven Growers Inc. are found faulty by some affiliating with that packing organization. Winter Haven Growers Inc. packs the fruit of growers of that district affiliating with, and marketing through, the American Fruit Growers Inc., but Winter Haven Growers Inc. is in no sense a "subsidiary."

Adv.

"I Took a Tip from a Ten-Year-Old

"EVERY time this little fellow came to my store to shop, he asked for Blue Goose fruits and vegetables.

"One day I asked him why. He said his mother told him that was the surest way of getting the best—that she knew she'd be satisfied with Blue Goose.

"It was just a hint—but I took it. If women trusted Blue Goose as much as that, it must be the line to stick to. I began to play up Blue Goose fresh fruits and vegetables strong. And I got results. Reduced spoilage due to more sales and quicker turnover. And more profits."

Blue Goose, the widely advertised, popular line of fresh fruits and vegetables, can help build up *your* department, too. Blue Goose quality makes satisfied customers and more customers. It will pay you to tie up with this famous name. American Fruit Growers Inc., Pittsburgh, Pennsylvania.

BLUE GOOSE AFG

READ how we are telling your customers about Blue Goose in the Saturday Evening Post of August 15th.

BLUE GOOSE

fresh FRUITS & VEGETABLES

THE HIGHEST MARK OF EXCELLENCE OF AMERICAN FRUIT GROWERS

A recent AFG grocery trade-journal advertisement

Adv.

Prosperity for this organization (basis of charges being definitely fixed) depends upon its volume of business. . .

Volume of business depends upon good will of the growers. . .

Good will of the growers entirely depends upon the superiority of service, to individual growers and to the industry. . .

Service comes first. . .

SERVICE COMES FIRST

American Fruit Growers Inc.

Florida Division
Orlando, Florida

Adv.

GREEN ALGAE AND LICHENS ON CITRUS

By Walter J. Bach, Pathologist, Texas Substation No. 15, in Texas Citriculture

During the spring and summer season of 1931 there has appeared on citrus in the Lower Rio Grande Valley of Texas a greenish, dusty looking covering on the leaves, twigs, branches, and trunks of trees. This is commonly known as green algae and is often accompanied by grayish-green, more or less circular spots, commonly known as lichens. These may be known by growers as "moss" because of the resemblance in appearance.

These lower forms of plant life sometimes become abundant on leaves and twigs during foggy damp periods or in localities where the humidity is high. They occur occasionally in Florida and the West Indies, as well as the Gulf of Southern California under certain seasonal conditions.

A spot due to a partially parasitic alga (Cephaleuros virescens Kunze) has been reported on citrus leaves and sometimes on twigs, in South Florida and the West Indies. The damage from this algæ, as a rule, is negligible but when the spots become very abundant the leaves often weaken and fall off. It is usually of minor importance on citrus, but is parasitic on a large number of plants, causing damage of varying degrees.

Algae are low forms of plant life which are closely related to organisms which attack citrus and various other plants, known as fungi. In general, algae inhabit the water or very moist places, but a few have become parasites on some of the higher plants. A common example of algæ growth may be found in the scum that forms on the surface of standing water. This type, however, is not parasitic.

Appearance of algae: The spots or patches produced by the algae are usually slightly raised areas which are circular to irregular in outline. The surface may be covered with

(Continued on page 24.)

"THE MOST DURABLE AND SATISFACTORY FIELD CRATE I HAVE EVER USED"

Says George R. Williams, Manager
Winter Haven Citrus Growers Assn.

Winter Haven, Fla., May 21, 1931.

Winter Haven Planing Mills,
Winter Haven, Florida.
Gentlemen:

It is with the greatest pleasure that I write you that the Cypress Field Crates with the Stay-Put heads which we have been using during the past several months have been eminently satisfactory in every way.

As you know, before we purchased these two thousand boxes, we put the samples submitted to us to the most severe tests, but the use of this style box in quantities has convinced me that it is the most durable and satisfactory field crate I have yet made use of.

And it is with the idea of placing credit where it is due that I am writing.

With best wishes for your continued success, I am

Very truly yours,
GEORGE R. WILLIAMS,
Manager Winter Haven Citrus Growers Association.

Mr. Williams Knows Field Crates—His Experience Should Be Worth Money To You. All We Ask Is That You Investigate

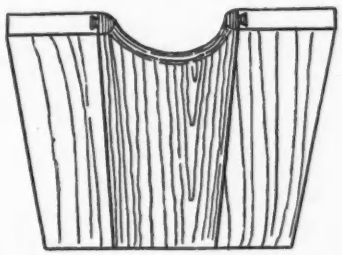

Illustration showing the new STAY-PUT Interlocking Cypress Field Crate Head.

For fifteen years we have been building Cypress Field Crates for the trade of Florida. From time to time we have made improvements which have resulted in greater strength and longer life for our crates, but the new STAY-PUT head which is illustrated here is without qualification the greatest innovation we have ever placed on the market. We also manufacture solid one piece heads, and are equipped to print your name on the heads.

We recommend to any buyer that he buy the best he can get for the money—and we state definitely that in our STAY-PUT head Cypress Field Crate we offer a greater value for less money than can be secured elsewhere.

Write, wire or phone us at our expense and a representative will call on you.

FLORIDA CITRUS GROWERS CLEARING HOUSE ASSOCIATION

Every Important Grower d The Clearing House A I

THE Clearing House is the same tod as th years ago.

THREE years ago, the Clearing Hou of ration was given an official O. K. by t ecret of Agriculture, William M. Jardine. Jard recognized the absolute power veste Clear House Board of Directors. That powe ts—n of it has been surrendered.

THE Clearing House has done a jo been real benefit to every grower in the it functioned along the lines approved lead grower and shipper in Florida as bei t pr tical under existing conditions.

THE Clearing House will continue e co tions in Florida's citrus industry. Ev r in state owes it to himself and the ind elp

Statement of Approval By Merton L. Corey After The Completion Of His Work In Assisting To Organize The Clearing House 3 Years Ago

"With the Clearing House assured, the time has come to let bygones be bygones. There are no old scores to settle. The changes asked by the shippers at the conclusion of the campaign were proper and the management and the growers were wise, indeed, to assure a high percentage of the control of the crop by making concessions which leave Clearing House fundamentals unimpaired"

You Can Help The Indu elp

FLORIDA CITRUS GROWERS CLEARING HOUSE ASSOCIATION

FLORIDA CITRUS GROWERS CLEARING HOUSE ASSOCIATION

er d Shipper Has Approved A Is Operating Today!!

e tod as three

Hou d of ope- by t ecretary ne. Jardine veste Clearing powe ts–none

a jo been of the d it has ved leading s bei st prac-

inue e condi- . Ev r in the e ind elp the

Clearing House do those things that are as necessary today as they were three years ago!

IF your Marketing Agency does not belong to the Clearing House, ask the Agency to tell you WHY. If your Agency's explanation ignores the welfare of the industry, then you will know the attitude is a selfish one and not inspired by a sincere desire to help ALL growers.

THE Clearing House has nothing to be ashamed of and nothing to hide. You owe it to yourself to acquaint yourself with FACTS; if there is any question in your mind as to how the Clearing House can help you, we will be glad to tell you. The Clearing House is on the SQUARE; it plays no favorites, but IT WILL ENABLE YOUR MARKETING AGENCY TO GET YOU MORE FOR YOUR FRUIT THAN IS POSSIBLE IF YOUR AGENCY REFUSES TO BECOME ONE OF US.

du elp You By Joining Now

FLORIDA CITRUS GROWERS CLEARING HOUSE ASSOCIATION

CITRUS COMMENTS

—BY—

Charles D. Kime, Orlando, Florida

This department is devoted to furthering horticultural interests of Florida. Letters of inquiry, discussion or criticism will be welcomed

INTERPRETING FERTILIZER TESTS BY GROWERS

Sooner or later all of us become interested in what our fertilizing is accomplishing for us in the way of growth and fruit results. As soon as we do, we begin to figure the effect of some special mixture or some material that has caught our fancy. All of us get bitten with the same desire at some time to "go native," "do something different" or just plain experiment. Such a desire is natural in anyone and is something to be encouraged; however, it often leads to strange and unusual procedure and conclusions. Just as often it may lead to desireable and more economical inovations in our fertilizing program.

During periods of low price, corner cutting or as some would undoubtedly prefer it "lowering cost of production" becomes a live and consuming question. The old law of supply and demand seems to get to work and start bearing down heavy on the marginal groves (marginal groves—those that cost too much to maintain in good production). We would expect, therefore, to find lots of special and unusual fertilizing being done at present.

With considerable regularity in the past, certain ineffective materials have been sold for a time, had a short periodic popularity, and then they would sink again into obscurity where they remain for a time, to be revived later. Soft phosphate is an example of this. It is a material that possessed some interesting and apparently valuable talking points, but its performance was always lacking and inconvincing except where soil acid conditions needed correcting. This occured with sufficient frequency to give a temporary promise. From the phosphorus supply standpoint, nothing has ever been developed of more than passing interest. A number of other materials appear to be more valuable from the standpoint of correcting soil acidity. As soon as the favorable effect was traced to the soil correction feature the material was dropped because of its expense. We still, however, use many materials for changing the soil pH re-action from acid toward the alkaline point.

We now have a large number of fertilizing materials, some manufactured chemicals, some strictly organic, and some occuring as natural deposits. Lately we have had a list of manufactured chemicals containing nitrogen added to our list. By rule of thumb methods we learned to handle our older materials successfully, both separately and then in combination with each other as commercial mixtures. Now again, we are in the same position of determining the useful limits of our newer materials such as urea, calcium nitrate, ammonia gas, diammonium phosphate. At the same time many growers are re-discovering how useful some of the older materials are when used separately.

It is doubtful that the mixed fertilizer formulas will ever diminsh a great deal in popularity. They are easy to use, are generally satisfactory and permit the application of several different sources of nitrogn, phosphorus or potash, and also permit the inclusion of other materials, all at one time. As long as prices for fruit are good, mixed goods will be popular, when however the margin of profit diminshes close to the vanishing point then the marginal groves must cut costs or quit. The other groves that produce fruit at a lower cost per box can continue for a time without much alteration in their grove care set-up.

As a background for our test or experimental home trials of fertilizer materials, we have first, a desire for greater economy; second, a normal and altogether natural curiosity as to what will happen to the grove under different treatment; and third, a desire to try the large number of materials giving a wide series of variable results, some of which probably offer really tremendous savings in ultimate grove costs. Fourth, a desire for better fruit and more of it per tree. Some few of the trials would be in response to a purely scientific urge to investigate.

Whatever the reasons that lead to grove precedures out of the ordinary the fundamentals affecting the work would be the same. Work done by a chemist, a plant phyisiologist, a grove owner, a fertilizer agent, a horticulturist, a real estate operator or anyone else, does not respond to his or her desire but affects the tree according to the tree's own manner of response in the environment where it is found. In other words, we are fooling with something that has its own multitude of relationships. Some of this relationship we know something about, though regarding most of them we know very little.

There is only one accurate way of getting at the whys of citrus production and that would consist of taking all of the factors into account. Even then not all of them would be subject to control.

The more common method which is actually followed by all of us even scientific investigators themselves is to use the trial and "what result did I get" method. This is always far from accurate and constantly leads to very peculiar conclusions, but it is actually the basis for all of our citrus fertilizer practice. Repeated trials of a given material such as barnyard manure for example, failed in the greater proportion of cases to give good results, hence manure of this type is not used by any number of growers. Repeated trials and years of use of such elements as nitrate of soda and sulphate of ammonia have rather clearly established the assumption that they are satisfactory fertilizer materials. Yet under some conditions both have proven toxic, much more so than nitrate of soda, on many plants, when used in rather weak dilutions. In spite of this, its use in citrus has continued without injury for years. Two explanations are offered. First, leaching of the material in our sandy soils prevent excessive accumulations; second, the calcium of the soil combines with a portion of the sulphur and allows it to leach out read-

ily. This explanation is O. K. for light soils, but is not so good for heavier solis as on these, harmful concentrations have been reached. The misuse of nitrate of soda will easily lead to fruit injury and if carried too far, to tree injury as well. These two examples are given as in them we have the two most commonly used fertilizer materials. Everyone is familiar with both and has used each frequently. Yet neither are fool-proof and both offer very striking examples of materials about which wrong conclusions are common.

Liming of groves received considerable advertising at one time. It was the thing to do. Liming can still be profitably done in the proper location, but it is no longer advocated. In fact, liming of groves is considered very dangerous at the present time. In this we have an example of a proceeding advocated at first, then condemned, and now used under the conditions where it is needed.

The use of bluestone it still practiced in ignorance and bliss by all of us on occasion. Yet there is not the slightest doubt that the need for it was unnecessary in the beginning and its present purchase is an additional unnecessary grove expense as was also the material we bought and applied that caused the trouble in the first place. Yet the effect of bluestone is one of the most outstanding examples that we have of quickness and action, when used to correct over ammoniation. Up to date we have not been able to trace any improvement in bearing or tree condition that cannot be secured more cheaply from other sources.

As an example of a sound practice originating by the old trial and error method we can cite mixing fertilizer sources. It is a safer practice to vary our fertilizer materials from time to time than to use the same sources season after season. The thinner and sandier the soil type the more value this precedure possesses. Our explanation lies in the protection afforded by the buffer action of a group of materials together. Citrus can profitably stand higher concentrations of several materials together, where one of them separately would be injurious. For an example, nitrate of soda and sulphate of ammonia used together are less likely to be injurious than when used separately.

As a matter of fact, all soils possess considerable buffer action to materials used singly even when continued for several applications. Some of our soils actually possess enormous ability to handle a single material in large quantity before showing a harmful saturation point. As pointed out before, the thinner the soil the sooner the harmful percentage of concentration is reached.

When we start any test work there are a few definitely known bits of information and we can determine a good many more. In order to get a fair idea of what we are doing we must determine as many points as possible and make allowances for those we cannot determine. Allowances made by investigators usually consist of repeated trials and check blocks. In other words, a test carried through a series of years or repeated under identical conditions is supposed to line up for us a sufficient number of cases to make the average reliable. It partly overcomes variation in weather, that is whether heat or cold, wet or dry, or some of these combined. It gives the soil time to become depleted in its buffer reserves so that the effect obtained is the true effect of the materials applied, unaffected by past applications as far as possible. Thus one year trials of a prennial (and citrus is a perennial) have no value; two years but little more, while at the end of three or four years we can begin to assume that our test will show some indications of a certain result. If the work is being done with, say, a single source of nitrogen material we could not expect the

(Continued on page 25.)

Whether for Citrus or Truck Crops . . . Fertilizer Costs represent . . . . a big and important investment

SO MUCH PROPAGANDA HAS BEEN PUT out recently that many Growers find themselves quite confused as to what fertilizer . . . the brand, the analysis and cost . . . is necessary to give them the best returns on their investment.

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The NACO Plan for fertilizing embodies economy with quality . . . a consistent and practical plan that recommends the use of minerals balanced with organic mixtures that contain liberal amounts of Genuine Peruvian Guano . . . Nature's Finest Fertilizer.

Our capable field representatives have a good sales story to tell you, but they do not ask you to take their word for its truth . . . they'll prove it to you by showing you NACO fertilized groves . . . by having you talk with many of the better Truck Growers who use NACO Products.

NEW PRICE LIST Just off the press, our Price List No. 25 is now ready for distribution. Growers who are now using NACO Brand Fertilizers will be interested to find that this year's prices are in many instances materially lower due to the reduced cost of many of the quality materials that enter into the makeup of NACO Brands . . . other Growers will be pleased to discover that for a very small difference in price they can buy a big difference in quality. If you have not received your copy, send for it at once.

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License of Produce Firm Revoked Under Perishable Commodities Act

Revocation of the license of Burton & Briel, Inc., produce dealers of Richmond, Virginia, has been announced by the U. S. Department of Agriculture, acting under authority of the Perishable Agricultural Commodities Act which was enacted by the last Congress.

The legislation charges the Secretary of Agriculture with the licensing of produce commission merchants, dealers and others engaged in interstate business, and empowers the Secretary to revoke licenses for causes specified in the Act. The license of Burton & Briel, No. 2254, issued Octobr 6, 1930, is the first to be revoked under the provisions of the Act.

The department found that "this licensee collected a loss and damage claim of $35.00 on a shipment of watermelons from Georgia sold on commission and failed to credit or pay over to the shipper any part of the said $35.00; that in another case this licensee tendered various invalid checks in the sum of $463.52 and thereafter failed and refused to make any payment or settlement for a car of apples received on consignment from the State of New York, the net proceeds from which amounted to this sum; that this licensee also failed or refused to pay to certain shippers in Florida the sum of $3,510.32, the net proceeds of the sale of seven cars of oranges received for sale on commission; that this licensee also turned over to two other licensees in Richmond five carloads of onions received from the State of Massachusetts for sale on commission and maintained open accounts with the firms to which these onions were sold, receiving payments in lump sums, and did not keep such records of the sales made from individual cars as would fully disclose his transactions."

"These violations," the department found, "were flagrant and repeated," and it has "therefore revoked the license of Burton & Briel, Inc., No. 2254 and has ordered publication of the facts as authorized by Section 8 of the Act."

Paragraph (b) of Section 4 of the Act provides that a licensee whose license has been revoked may not again engage in the business of a commission merchant, dealer, or broker except at the discretion of the Secretary of Agriculture. This applies to all responsible members of any association, partnership, or corporation whose license is revoked.

The full text of the Acting Secretary's findings of fact, conclusions, and order follows:

Proceedings

The complaints embraced in the above-numbered dockets involve certain transactions and practices of Burton & Briel, Inc., of Richmond, Virginia, as a licensee under the Perishable Agricultural Commodities Act, 1930. After service of the complaints and notices of hearing, respondent executed and filed an admission of service and waiver of hearing in each case. Such admission of service and waiver was made by W. E. Burton as Secretary and Treasurer of respondent. Such instrument also authorizes me to enter findings of fact in conformity with the allegations of each complaint and to make and enter an appropriate order thereon. The several complaints will, therefore, be jointly considered and disposed of in a single order. In conformity with the authorization above referred to, the allegations of each complaint will, in substance, be restated in making the following:

Findings of Fact

In Docket Nos. 2, 3, 4 and 5, I find:

1. That Burton & Briel, Inc., is a corporation and was during all of the times embraced in the succeeding findings of facts, engaged in the business of buying and selling perishable agricultural commodities, at Richmond, Virginia, as a commission merchant as that term is defined in the Act; and on October 6, 1930, the said Burton & Briel, Inc., was issued a license under said Act being No. 2254.

In Docket No. 2, I further find:

2. That on or about August 6, 1930, J. H. Allen of Fort Valley, Georgia, shipped from Perry, Georgia, to respondent at Richmond, Virginia, one carload of watermelons to be sold by respondent on commission.

3. That on or about August 11, 1930, respondent notified the shipper that said carload of watermelons had arrived at Richmond, but had been seriously damaged in transit; that on account of the damaged condition thereof respondent was compelled to sell the same for an amount much less than what would have been realized had the shipment arrived in good condition; that respondent, after deducting transportation charges and commissions, remitted to shipper the sum of $34,87; that respondent thereafter filed a claim for damages to said shipment, and on or about December 3, 1930, received from the Seaboard Air Line Railway Company the sum of $35.00 in full settlement of said claim.

4. That although respondent filed said claim for damages on behalf of the shipper, J. H. Allen, respondent thereafter failed and neglected to credit or pay over to the shipper the said sum of $35.00 or any part thereof.

In Docket No. 3, I find:

1. That on or about the 20th day of September, 1930, the Alasa Farms of Alton, New York, consigned and shipped to respondent one carload of Wolf River apples; that said shipment moved from Alton, New York, to respondent at Richmond, Virginia, and was there sold by respondent as a commission merchant.

2. That respondent thereafter failed and neglected to forward to the said Alasa Farms an account of the sale and disposition of said carload of apples until on or about the month of December, 1930, at which time the respondent forwarded to shipper its check in the sum of $463.52 in payment of said apples; that said check was drawn upon the State-Planters Bank & Trust Co. of Richmond, Virginia; that said check upon being presented to said bank in the regular course of business was returned by said bank for the reason that same had been undated and un-

signed.

3. That thereafter the shipper drew a sight draft against respondent through the First National Bank of Sodus, New York, which draft respondent refused to honor, and same was returned to Alasa Farms on account of such non-payment; that thereafter respondent forwarded to shipper a second check in the same amount drawn upon the State-Planters Bank & Trust Co. of Richmond, Virginia, which check was returned by the bank upon which it had been drawn because the same had been postdated; that thereafter another check drawn by respondent upon the same bank was returned without payment for the reason that the date thereon had been altered; that respondent has therefore failed, neglected and refused to remit to the shipper the proceeds of the sale of said apples made by it as a commission merchant under the Act.

In Docket No. 4, I find:

1. That the Peninsula Distributing Company, Inc., of Tampa, Florida, shipped to respondent at Richmond, Virginia, during the month of December, 1930, seven carloads of oranges, each consisting of 360 boxes.

2. That respondent sold and disposed of said oranges as a commission merchant for and on behalf of the said Peninsula Distributing Company, Inc., on or about the date that each of said shipments were received by respondent, but thereafter failed, neglected and refused to remit to the said shipper the net proceeds of said sales, which amounted in all to the sum of $3,510.32, which sum remains due and owing the Peninsula Distributing Company, Inc., from respondent, no part of which has been paid.

In Docket No. 5, I find:

1. That during the month of August, 1930, respondent received, in inter-state commerce, at Richmond, Virginia, from the Connecticut Valley Onion Company of South Deerfield, Massachusetts, five carloads of onions, which onions were sold by respondent as a commission merchant to T. B. Pearman & Co., Inc., and to the Richmond Fruit & Produce Company, Inc., both of Richmond, Virginia, during the said month of August, 1930.

2. That the books, records and files of respondent were examined by a representative of the Department of Agriculture on a date some time subsequent to the sale of said onions; that an examination of such records disclosed that the onions had been sold by respondent, but that the entries made were insufficient to identify each carload of onions sold, and were insufficient to indicate in detail each sale transaction, but that such books and records showed the running of open accounts between respondent and the said T. B. Pearman & Co., Inc. and the said Richmond Fruit & Produce Co., Inc.; that lump sums had been paid by said purchasers without in detail indicating the particular sale transactions to which such payments related.

CONCLUSIONS

Based upon the Findings of Fact above made, I hereby determine and conclude that respondent, in Docket No. 2, failed truly and correctly to account to J. H. Allen the amount received by respondent in settlement of the shipper's claim for damages made against the Seaboard Air Line Railway Company, which failure constitutes a violation of Section 2 of the Act; that in Docket No. 3 respondent failed, neglected and refused truly and promptly to account to the shipper in connection with the sale of a carload of Wolf River apples, in violation of Section 2 of the Act; that in Docket No. 4 the failure and refusal of respondent to remit and pay to the Peninsula Distributing Company, Inc., of Tampa, Florida, $3,510.36 as net proceeds in connection with the sale by respondent of seven carloads of oranges, were in violation of Section 2 of the Act; that in Docket No. 5 respondent failed and neglected to keep such accounts, books, records and memoranda respecting the sales of onions made for and on behalf of the Connecticut Valley Onion Company of South Deerfield, Massachusetts, as is required by Section 9 of the Act; that the violations of the Act found to have occured in Dockets 2, 3, 4 and 5 were flagrant and repeated within the meaning of Section 8 of the Act.

ORDER

Upon the Findings of Fact and Conclusions above recited,

IT IS HEREBY ORDERED that the license heretofore issued to Burton & Briel, Inc., the above-named respondent, under the Perishable Agricultural Commodities Act, 1930, on or about October 6, 1930, being license No. 2254, be and the same is hereby revoked, subject to effective date hereinafter provided, and respondent is hereby required forthwith to return to the U. S. Department of Agriculture, Bureau of Agricultural Economics, the above-described license; that the facts and circumstances of such violations be published by the bureau as authorized by Section 8 of the Act.

IT IS FURTHER ORDERED that a copy hereof, consisting of Proceedings, Findings of Fact, Conclusions and Order be regularly served on respondent by registered mail; that this order will become effective ten days after such service.

IN WITNESS WHEREOF, the Secretary of Agriculture has hereunto set his hand and caused the official seal of the Department of Agriculture to be affixed in the City of Washington, District of Columbia, this 7th day of May, 1931.

(Signed) R. W. DUNLAP,
Acting Secretary of Agriculture.

MEALY BUGS GETTING ABUNDANT IN CITRUS GROVES THIS SEASON

Reports from over the state indicate that mealy bugs are becoming rather abundant in citrus groves, especially grapefruit, this season, J. R. Watson, entomologist with the Florida Experiment Station, recently stated. These insects proved very troublesome last summer, and unless they are controlled are likely to further reduce this crop which is already below normal.

When spraying for mealy bugs pressure is the important thing. Plain water if applied with sufficient pressure will give fair control, but the addition of an insecticide is highly advisable. Pressure is so important because the insects crawl into cracks and crevices where they are protected.

Rust mites are also becoming plentiful in some groves, and the same spray should get the two. Mr. Watson recommended lime-sulphur, 1 part to 50 or 65 parts of water. This spray, however, should not be applied in the middle of a hot day, for it might burn the foliage and fruit.

If there is no need of fighting rust mites and mealy bugs are plentiful he suggested a spray made from 2 1-3 pints crude carbolic acid, 2 1-3 pounds fish-oil soap, and 50 gallons water. Only a good grade of carbolic acid should be used. The crystal form, though more expensive, is safer. Some other spreader may be substituted for the soap.

He mentioned a number of natural enemies as being effective in mealy bug control, but oftentimes we cannot wait for these friends to do the work. The Experiment Station has been raising a number of the Cryptolaemus lady beetle, obtained from California, and the workers are well pleased with the way it thrives in Florida. Over 5,000 of these beetles have been liberated in Florida groves, and in every grove a month later they were there at work. They also eat other insects.

GREEN ALGAE AND LICHENS ON CITRUS

(Continued from page 17.)

short hair-like structures which are the fruiting bodies or if these structures are absent the surface of older areas becomes greenish-gray and velvety. In many cases the entire leaf surface may be covered with this greenish growth which closely resembles the residue from sulphur dust, but has a slightly more greenish cast. On the trunks and larger limbs the growth of algae appears as as slight greenish covering that is not uncommon on many varieties of trees in forests and other moist locations.

It has been suggested that the appearance of green algae on trees is an indication of seepage or other environmental condition which is not healthy for the trees. Such is not exactly the case, however, as this green algae may be found on perfectly healthy trees where the conditions have been more humid and favorable for its development. Lack of vigor on the part of the trees does often seem to be a contributing factor, since both algae and lichens are likely to be more abundant on weakened trees than on healthy, rapidly growing ones. For this reason the presence of algae and lichens is sometimes mistaken for the cause of the bad condition of the tree, when they are merely abundant because of the weakened condition of the tree from some other cause. The weaker, slow growing trees seem to be more favorable hosts, due in part perhaps to the fact that the bark on such trees is not being renewed very rapidly. A weakened condition of tree growth due to lack of drainage or any other unfavorable condition is probably a factor in the appearance of algae.

Appearance of lichens: As has already been stated, lichens, which belong to one of the lower forms of plant life in which a fungus and algae often live together with mutual benefit to each other, are frequently seen on citrus leaves, twigs, branches and trunks, especially in shady, humid locations. As a rule they are not parasitic but live entirely on the surface and may also be found on fence posts, the roots of buildings, logs and native trees. In the Valley lichens have appeared following rainy periods on leaves, trunks, and branches of trees which have been coated with green algae. They appear as grayish to grayish-green spots, circular to irregular in outline. Another type which occurs on the bark of citrus is characterized by the pinkish-white spots adhering closely to the bark. A common form is a grayish-green paper-like growth on the bark which may cover a spot an inch or more in diameter, or may present an irregular patch several inches in extent. Still other forms may appear as small black dots on a white, indefinitely outlined background.

Lichens are considered harmless so far as any direct injury produced by their own growth is concerned. They obtain their own nutrition from the air or from dead tissues, or organic matter on the surface. When lichens become very abundant, however, they may be slightly harmful, indirectly, by interfering with the normal functions of the leaf surface or by harboring other injurious pests.

Control: Since algae and lichens, as a rule, are not considered injurious, definite recommendations for control practices are seldom required. In general, their presence on the tree following wet periods should not cause any undue alarm. Algae and lichens may be removed from trees by spraying with some fungicide. One thorough application of commercial lime-sulphur or Bordeaux mixture will usually accomplish the result. The removal of algae and lichens will hardly pay for the expense and trouble unless the tree is being sprayed for some other purpose or it is the desire to improve the general appearance. Keeping the trees in a vigorous growing condition should be an important preventive measure. Care in drainage, as well as cultural operations, in order to obtain the best vegetable growth possible should reduce the occurrence of algae and lichens to a minimum.

FIRE ENDANGERS DUNEDIN PLANT

The Florida Citrus Machinery company plant, in Dunedin, was endangered by fire on the night of July 15 when blazes broke out in the north end of the buildings.

The quick work of the Dunedin fire department, however, soon had the blaze under control and small damage was done.

It is believed that the fire was started in a box of trash and sawdust by sparks from a train that had passed a few minutes before.

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IMPRESSIONS

(Continued from page 12.)

Orange growers in some sections of California have found the "pest control district," a voluntary association of growers in a given area, one of the most economical and effective methods of combating citrus pests in their properties. It is our idea that such an arrangement cannot fail to make all the growers in the area "pest control-conscious" which in itself is a big thing. The pests which spread from one grove to another must be reckoned with.

A spray rig with a runaway team recently caused the death of the youthful driver in California. And up back of our own back pasture last fall a wheel suddenly coming off a tractor upset the machine, gasoline spilled about, and a rather bad fire got under way almost instantly. There is no such thing as absolute safety from accident.

Yet in a thunder storm undoubtedly the safest haven is inside some place of business which does not advertise. Things rarely happen there.

CITRUS COMMENTS

(Continued from page 21.)

results of any series of field tests to give us the final word regarding its value but we would expect to establish the value of that material as a growth producing material. We would expect to know something about its toxicity (liability to cause injury) under the conditions we had for our test only, not other conditions. And by following the soil reactions and checking up on other conditions we could tell if it seemed feasible to continue the work or if it should be varied or dropped. As an example, the Lake Alfred Station has a sulphate of ammonia test already referred to, that has been running for about nine years. It is still satisfactory. Other soils and other conditions have shown injurious results in a few years from sulphate of ammonia. There is a very definite explanation for the ability of high land light soil groves to handle some materials such as sulphate of ammonia satisfactorily and not other materials, but this ability or defect is not revealed even after years of field testing. The serious objection to the test is the application of the method by the average grove owner under conditions that are unsuited to its continued use. The value of the test on the other hand lies in its applicability to a huge number of high land locations when combined with other necessary grove procedures.

The above illustrations are cited with the intent of illustrating the ease with which wrong conclusions may be drawn from fertilizer effects that have all of the appearance of being simple reactions, when in actual fact we are dealing with a series of soil reactions that, properly directed are very helpful, but when used indiscriminately may lead to serious results.

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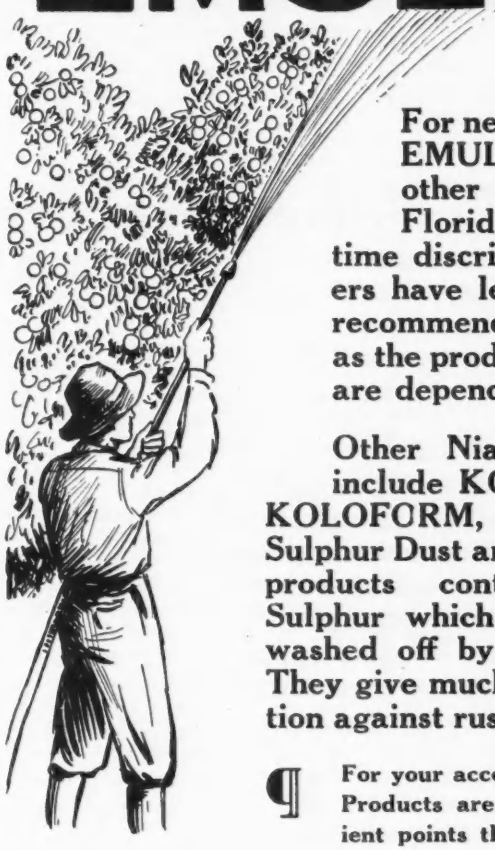

For nearly eight years EMULSO has led all other oil sprays in Florida sales. In that time discriminating growers have learned that the recommendations as well as the products of Niagara are dependable.

Other Niagara Products include KOLODUST and KOLOFORM, the Bentonite–Sulphur Dust and Spray. These products contain Colloidal Sulphur which is not readily washed off by summer rains. They give much longer protection against rust mite.

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Jacksonville, Florida

The Blackmore Strawberry

By A. N. Brooks and R. E. Nolen
Experiment Station Strawberry Laboratory, Plant City, Fla.

During the past two seasons the strawberry growers of the Plant City area have shown considerable interest in a new variety known as the Blakemore, which has been recently introduced by the United States Department of Agriculture, and is being planted for the coming season by a number of growers.

The Blakemore, formerly known as U. S. D. A. No. 659, was secured by crossing Missionary with Howard 17 (Premier) at the United States Plant Field Station near Glenn Dale, Maryland in 1923.

Among the plants secured from this cross several were considered especially promising because of their excellent qualities and were given further trial at the grounds. These were then sent out for field trials in Florida, North Carolina, and as far north as New Jersey during 1926 and 1927. In these trials No. 659 proved to be outstanding. The first plants of this variety were received at the Strawberry Laboratory near Plant City in the fall of 1926.

The Blakemore produces a compact, moderately upright plant with slightly cupped leaves, while that of Missionary is more open with flat leaves.

This variety seems to be as well adapted to our climatic conditions as Missionary. During the past winter, 1930-31, the Blakemore withstood the unusually long periods of coid, wet weather as well as if not better than Missionary. The root system was white and vigorous throughout the winter.

The fruit is more uniform in size than Missionary, similar in shape although slightly blunter, with broad shoulders and a slight neck. It ripens uniformly, is bright red in color, and has a glossy appearance. The small yellow or green seeds are even with the surface. The berry is of tender texture, firm, slightly less acid than Missionary, and ships well. In the Plant City area it comes into bearing about a week before Missionary.

Blakemore fruit is more easily picked, due to its tender stems, and is more readily washed free of sand, due to its glossy surface.

During the past season many knotty, misshaped berries were found on the Missionary due to faulty pollination. This condition was less prevalent on Blakemore as was also the number of cracked and faulty berries immediately following heavy rains.

The Blakemore outyielded the Missionary on the grounds of the Strawberry Laboratory during the past season at the rate of 181 quarts per acre which meant an increased income of $66.73 per acre at the prevailing prices. In January the Blakemore yielded at the rate of 125 quarts more per acre than Missionary, in February 78 quarts, and in April 65 quarts. In March the Missionary passed the Blakemore by 86 quarts. It will be noticed that the Blakemore gave the higher production during the period of higher prices.

With its uniformity of size, its bright color and glossiness, as well as its firmness, the Blakemore makes a good shipping berry.

Some growers object to the light color of the Blakemore; however, upon arrival at the market this is an asset when compared with the dull, dark red color of the Missionary.

Because of its promising behavior under Florida conditions thus far, it would be well for the growers to try out this variety. This does not mean that it should be planted exclusively but rather that there should be a small planting along with Missionary, care being taken to insure fairness in trial by using similar soil, drainage, fertilizer, and cultivation.

Commander Urges Need of Greater Advertising Program for Future

Deeply impressed and equally concerned that big crops are to be the common occurence of the future, General Manager Commander of the Florida Citrus Exchange at the annual meeting of Winter Garden association urged for a greater program to create demand and balance the tremendous increase in supply. He also placed equal importance upon common sense merchandising in substitution for the present haphazard, unregulated method.

"There is nothing that regulates price as does the law of supply and demand," Mr. Commander said. "If the supply is too large, the prices necessarily are lower."

The answer is to create more demand to absorb the increasing supply, Mr. Commander stated. This is a grower problem as no matter how it is done the grower pays for it, he said. This latter is a point, Mr. Commander said, which the grower usually overlooks. Whatever is done and regardless of who it is done by, it is paid for by the growers, he said.

The value of the Florida citrus industry is approximately $500,000,000 in Mr. Commander's opinion and he pointed out that a business of that size should allow more for advertising its product than has been given to Florida citrus.

Mr. Commander declared that the industry could well afford to spend $2,500,000 a year for advertising for the next 10 years.

In concluding his talk, Mr. Commander left with the association members three thoughts—the growers must stabilize the industry; they must be willing to spend the money necessary to do it and they must be willing to pull together.

Crushed Blackberry Jam

4 cups (2 lbs.) crushed berries
7 cups (3 lbs.) sugar
½ cup bottled fruit pectin

Use only fully ripened berries. Crush one layer at a time so that each berry is reduced to a pulp. (Complete crushing helps to prevent floating fruit or spoilage.) Measure crushed berries and sugar into large kettle, mix, and bring to a full rolling boil over hottest fire. Stir constantly before and while boiling. Boil hard one minute. Remove from fire and stir in fruit pectin. Then stir and skim by turns for just 5 minutes to cool slightly, to prevent floating fruit. Pour quickly. Cover hot jam with film of hot paraffin; when jam is cold, cover with ⅛ inch of hot paraffin. Roll glass to spread paraffin on sides. For a soft, very slow set use ½ cup less sugar. Requires about 2 quarts fruit.

NEW DEVELOPMENTS IN MARKETING CITRUS FRUIT JUICES

(Continued from Page 7)

burning sulphur, have all been used with more or less success. Where this is done the excess of gas must be removed before the liquid is consumed, and in the case of the sulphur gas, only mere traces could remain without imparting an off-flavor.

The most recent method evolved for preservation of fruit juices is that of instantaneous freezing, and this promises to become the most satisfactory and widely used. Unlike the sterilization methods, instant freezing does not kill the organisms within the juice, merely checking their growth so that spoilage from that source is eliminated. Recent experimental work and shipments on a considerable scale have revealed that frozen juice may be held in cold storage and shipped under special refrigeration so that it can be delivered to large customers in better shape than that put up under the various sterilization methods. This development is still in its infancy, and much needs to be ascertained about its limitations, but with improvements in retail distribution and home refrigeration, it is believed that an enormous field for distribution of fruit juices will be opened.

Development of the so-called "quick-freeze" process has been the subject of intensive research for many years. Until recently it was thought that if a food product were cooled sufficiently to prevent fermentation, all had been done that was necessary. It was found, however, that in preparing frozen fish for shipment that the rapidity of freezing made a difference in the physical condition or texture of the product after it was thawed and cooked. Investigation revealed that very rapid freezing produces a firmer, finer texture than slow freezing. This is probably due to the fact that in rapid freezing the ice crystals which are formed are very small and there is consequently less tendency to rupture the cells in the frozen food. When the cells are ruptured the product becomes mushy when thawed.

Solid carbon dioxide, commonly known as "dry ice," is now being used extensively as the refrigerant to produce the almost instantaneous freezing required under the recently evolved process. This is obtained as a solid. When this solid evaporates, becoming a gas, it will produce a temperature of 110 degrees below zero F. By constructing well-insulated coolers containing holders for this solid, around which brine is circulated, the later can easily be cooled to 50 degrees below zero.

The fruit or fruit juices to be frozen are placed in paper containers, tin cans, or glass jars or bottles. They are sealed before freezing and placed directly in the cold brine. With a temperature around 50 degrees below zero F., the juices become solid in about five minutes, but the fruits require a longer time.

Yet another possibility exists where temperatures as low as —80 F. can be obtained. The packages, cans or bottles can be placed in direct contact with the carbon dioxide, and an almost instantaneous freezing secured. Investigation reveals that utilization of this extremely low temperature results in no perceptible change in the flavor of the fruit juices when thawed for consumption and they retain almost in whole their original vitamin values.

Among the products on which these new freezing methods can be used to advantage are citrus fruits, pineapples and peaches. All of these are changed to a greater or less extent by application of heat in the preservation process. In fact, most citrus products are quite adversely affected by heat. Notwithstanding the fact that pineapple makes a very successful canned product, in the opinion of most of those who have had the opportunity of tasting it, the frozen material is much superior.

Orange juice has been kept frozen for months in cans and bottles, and has undergone but little change in flavor, but the paper conainer has not proved well adapted for storage, as it allows contact with the air to a certain extent, and it soon progressively deteriorates, beginning at the outside of the package. For most of the products with which the department has experimented, a storage temperature up to 5 degrees F. seems adequate. However, there remains much research before the department on this problem, and it is possible that higher storage temperatures can be used on some commodities.

One phase of fruit juice distribution which heretofore has been neglected in this country and to which the Bureau of Chemistry is now devoting considerable attention is that of the preparation of juice mixtures or blends. The object of this is twofold—to improve the flavor and to secure the desired vitamin balance. Small amounts of one fruit juice added to another may greatly improve its flavor and appearance, and the mixture may be superior to either of the juices used both as a food and for medicinal purposes. Grapefruit juice is greatly improved by the addition of 15 to 20 per cent of Logan, blackberry or pomegranate juice, and this mixture is now being used quite extensively in some of the hospitals. Apple juice mixes well with many tart juices, and lemon juice is often used to improve the sometimes flat flavor of other citrus juices. Pomegranate juice can be used with good effect, owing to its high color and rather neutral flavor. Even rhubarb juice is being used in mixtures and blends. In fact, this phase of distribution opens a wide field for research and experimentation which will tend to increase the popularity and consumption of fruit juices.

Another development of this industry—concentration of fruit juices by the freezing process—is receiving considerable attention from the department experts and the various distribution agencies. Some years ago an investigator of the Department of Agriculture demonstrated that fruit juices could be concentrated by slowly freezing and separating the ice crystals formed in the juice. By refreezing the separated liquid and again removing the ice a highly concentrated juice could be obtained.

CITRUS GROWERS SHOULD SPRAY FOR LIVE MITES AND NOT YELLOW SPOTS

There's no need spraying for dead six-spotted mites, and that's what citrus growers are likely to do unless they find live mites on the yellow spots of the leaves, according to J. R. Watson, entomologist with the Florida Experiment Station. The spots will remain on the leaves, but it seems that many of the the mites have been killed by a fungus disease.

However the sulphur spray or dust will kill rust-mites and purple mites.

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GETTING RESULTS FROM THE EDUCATIONAL SYSTEM

(Continued from page 5.)

Just as the mass task of providing government with leaders and officers requires organization, so also the mass task of getting educational aid, and of adopting its findings, requires organized methods. Today large-scale commercial operations are impossible without comprehensive organization. Those who are organized are in a position to engage the best managements, and to follow the keenest strategy in their operations. Thorough organization is the indispensable means of guaranteeing the essentials we have just spoken of as so vital to the matching of demand and supply.

Growers need to organize in order that they may exercise or follow up and make the most of the opportunity to operate by obtaining and holding competent management and giving it full support. From this it is evident that without organization the mass of growers is unable to make for itself either better operating opportunity or to engage able management to capitalize that opportunity. Becoming organized is the means of establishing responsibility, and this responsibility then creates the opportunity to operate, and finally finds and holds the management which is able to make good on both the responsibility and the opportunity. Being organized fixes the basis upon which all the growers then share in the benefits of their united endeavors.

When these things have been done it may be said that the growers have taken control of their industry. They have then done their part to balance supply with demand in a business-like way. These things have not been done already because growers have not been educated to the need of this nor of how to do it. It is not possible to educate others. Education is a self-chosen and self-developed asset.

Almost every community has available the service of many educational and other helpful agencies. Making the most of them is now the great opportunity and need. Teamwork of all of these agencies with the growers at their request, backed up by their interest, demand, and support will go a long way toward building a popular understanding of the problem before us.

These educational agencies are the high schools linked under a national law which promotes vocational agricultural training in all the applied sciences and arts including marketing, cooperation, and other economic knowledge built up from sound experience by growers. The extension service with its farm advisor system provided by another national law renders educational service to growers, covering the same wide range of subject matter. These two agencies together are enabled to cover the whole ground of educational effort. They seek to help growers, young and old, and the growers' children, so that desire may be satisfied to the utmost.

What is needed is a united front by growers' organizations, including the commodity cooperatives, the farm bureau, the grange, the farmers union, and the numerous other agencies to bring about growers' desires for popular understanding of this problem and the best hope of solving it. This would open the door for the farm advisor and the agricultural teacher and many others to respond to the growers' request for courses and educational service that would enlighten all. We certainly cannot act in common on the same plan unless we first see and believe in common on the same problem and the same solution. Until this is made possible the great evils in agriculture must inevitably continue. They

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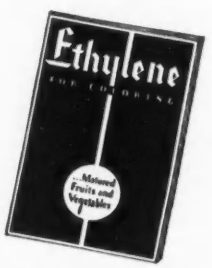

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will so continue merely for the reason that they are not adequately dealt with.

LONG-TIME MAINTENANCE OF THE PRODUCTIVITY OF ORCHARD SOILS

(Continued from page 9.)

pounds of actual nitrogen per acre.

Specific Fertilization Follows Basic Soil Treatment

In the light of what evidence we have it would seem that a sound system of orchard soil management should include whatever fertilization is found to be necessary to the production of large yields of cover crops, both annual and sod; that periods of clean cultivation with cover crops probably should be alternated with periods of sod, since sod adds organic matter much more rapidly than do annual cover crops; and that the sod must be plowed under about as soon as it becomes dense in order to avoid nitrogen starvation of the trees.

With these basic soil fertility treatments properly attended to, then and then only it is time to consider specific fertilization of the apple crop, which normally means early spring application of some suitable nitrogen carrier such as sulphate of ammonia, or nitrate of soda or calcium nitrate at the rate of 5 to 15 pounds per tree.

SIMPLIFICATION OF SIZES OF SHIPPING CASES FOR CANNED FRUITS AND VEGETABLES TO BE DISCUSSED

The division of simplified practice of the Bureau of Standards has just announced that a general conference of representatives of all interests to discuss the simplification of sizes of paperboard shipping cases for canned fruits and vegetables will be held in Room 704, Department of Commerce Building, 19th St. and Pennsylvania Ave., N. W., Washington, D. C., at 10:00 a. m., (e. s. t.) on Friday, May 29th 1931.

A tentative list of sizes for paperboard shipping cases, prepared by the standardization committee of the Paperboard Industries Association, will be submitted for the consideration of the conference. This list recognizes the recently proposed recommendation of 27 sizes for canned fruits and vegetables, as approved by a general conference on January 30th, 1931, and which is now before the industry for acceptance.

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Our Clippers are the Round (Bull) Nose Type. They do not pinch the fruit — no clipper cuts — the shape of the Clippers permit clipping in close clusters of fruit better than other types.

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Carry the exclusive feature of the rubber-covered rim which eliminates the possibility of rust eating through the canvas. This feature also protects the fruit while the flexible inside belt makes these bags most comfortable. Their superior durability as compared with other bags has been proven beyond all question.

OUR CYPRESS FIELD CRATES

Are all made from the famous Gulf Red Cypress. We make them in all types—Solid Head—Channel Head—Dove Tail Joint Heads and other type Heads. The fact that we are the largest distributors of field crates in the state furnishes proof of the high character of our field crates. We are equipped in our factory to print crate heads.

TRUEST ECONOMY is evidenced in buying the very highest quality of merchandise at the lowest possible price and in the lines we handle we offer you just that opportunity.

TOWNSEND

Sash, Door & Lumber Co.

Lake Wales, Florida

AGRICULTURAL PROBLEMS

(Continued from page 6.)

Board responded very well to this appeal to their fairness, and I am entirely confident that all that is necessary to insure agriculture getting a square deal and even preferred attention is to have its interests properly represented and courageously set forth.

The National Chamber should be, and is, an absolutely dependable source of sound economic doctrines, but it is very close to the capitol and much closer to the White House than to the capitol. Therefore, it has to be on its guard lest this proximity should affect its independence of thought or action. During these crucial times it is necessary for big business and industrial leaders to be politic, but very bad if they play politics. Some of these recognized leaders have been pretty thoroughly sold upon these new theories to which I have previously referred.

The Agricultural Committee of the Chamber has recently made an exhaustive study of the Florida Citrus Clearing House. It has also been making a concentrated study of cooperative marketing. Several members of the Agricultural Committee are leading officials of the most successful cooperatives of the country. Among others I might mention the Vice-President of the Sun Kist Association and the President of the Land of Lakes Creamery. All other departments of Agriculture are also represented in the Agricultural Committee. I quote from a recent report from the Chamber on agriculture:

"Agricultural Stability: The Chamber believes that the restoration of agricultural prosperity is vital to business. Its studies of agricultural problems over the last eight years have developed convincing evidence that underlying the current agricultural depression are certain fundamental factors which must be understood before agriculture can be placed on a foundation of stable prosperity.

"Agricultural Production. Agriculture is passing through evolutionary changes, primarily in the field of production, due to the increasing use of labor-saving machinery. There are increasing hardships attending efforts to produce on marginal lands, which at best can be counted to yield no more than a meagre living for those who operate them. Changing food requirements have brought new forms of competition between the geographic regions in continental United States.

"During the year it is the intention of the Chamber to present definite suggestions looking toward a permanent improvement in agricultural conditions.

"Private Initiative: The Chamber will continue efforts to bring about the adjustment of governmental practice to the long-standing national policy of private initiative and enterprise, to the end that both may operate to the advantage of agriculture."

I feel particularly at home in Orange County and the State of Florida. From 1891 to 1895, I spent eight months of the year in Florida and covered on foot and on horseback practically the entire State from Gainesville to Ft. Myers and Miami. At that time there was no railroad on the East Coast, south of Rockledge; nor any usable roads in the Ft. Pierce-St. Lucie District. The foot path and a sail boat were the only two modes of travel available to us engaged in the shipping of the great pineapple crop. Polk County, in those days, was one of the large tomato shipping points of the state, the citrus industry had scarcely begun in that section. The celery industry of Florida did not then exist.

I spent the evening of December 28th, 1894, at Oviedo and saw the thermometer drop to 15 degrees. A very beautiful crop of Florida citrus fruit was entirely destroyed by that freeze. Six weeks later, when the trees were just sprouting out again, an almost equally severe freeze practically cleaned up the citrus trees and the industry north of Tampa. Because of that incident partly, I went to Pittsburgh with Mr. Woolfolk and became engaged in the commission business.

I mention this principally to indicate to you that I have seen Florida in a whole lot worse shape than it is today. We began business in Pittsburgh January 1st, 1896. At that time, and for months thereafter, we sold strictly No. 1 New York Baldwin apples at 75c a barrel delivered Pittsburgh and potatoes at 25c per bushel. Other produce and merchandise were selling about on a parity with these prices. Steel mills at Pittsburgh were then, as now, operating at a minimum capacity but they had no such surplus to fall back on as does now the U. S. Steel, Jones & Laughlin and other principal steel manufacturers.

Are present business conditions chaotic or normal? Good or bad? We are so close to the situation and so much involved in it that we may naturally lose the right perspective. The so-called prosperity of the past decade was not only unbalanced but chaotic in the extreme. We can clearly see now that the so-called prosperous times preceding October 1929 were in reality a delusion and a snare. Personally I venture the opinion that when we look back to the present time a few years hence, we will see that the great industrial and business machinery of the nation have merely paused to make necessary major readjustments, get its balance, and then proceed with a healthy balanced prosperity based on sound economic and common sense. The experiences of the past decade were naturally the result of the jubilant spirit of this great nation enjoying the first fruits of the world war banished and we started out the new era with determination to take the bee-line air-route rather than the ups and downs of the old method of travel. The experiments we have been making and the lessons we should have learned ought to be worth all they cost, expensive as they have been.

We literally tore down our barns and built greater, and there bestowed our fruits and our goods, and actually repeated the words of the fool of old—"Soul take thine ease; eat, drink and be merry."

All of this we actually did and it is to be hoped that we will repent and behave ourselves lest we have to wander in the wilderness for forty years, more or less, until a new generation shall come, nurtured in the lap of adversity who will work out the great destiny of this nation.

Much of the present so-called depression is artificial and man-made. In this nation we have all the elements needed for normal prosperity. One thing is lacking: the general public has lost confidence and our political and business leaders have not been able to find it. The people apparently do not believe in the new theories, which are still being advanced in high places. Among other things, they can not quite comprehend how traffic and prosperity are to be restored to the railroads by advanced rates, nor how the total purchasing power of the public can be maintained and increased by maintaining wages and decreasing employment. Perhaps these two experiments will have to be carried a little further before we are through experimenting with new, untried and unheard of economic principles. Confidence will be found immediately when tried and proven economic principles are generally recognized and put into operation. We do not anticipate any great improvement in business until confidence is restored either by the unexpected success of

these new experiments or their abandoment for a quick return to the old ideas of Thrift, Economy and Industry.

The principal provision in the Agricultural Marketing Act was to place agriculture on a parity with other American industries. I cannot enthuse on that objective unless perhaps it could be made retroactive covering the past decade. Agriculture has been thoroughly deflated while many other of our principal industries are just now beginning to go through the agonies of the deflation. All of the water and all of the other over-expansion of the past decade will have to be squeezed out. I expect to see agriculture on a better than parity basis as compared with most other industries during the next decade. This is based on my faith in the sure operation of economic law, and on my faith in the essential soundness of American agriculture and on my confidence in the fact that the American farmer who has survived the last decade compares favorably as a business man with the business men in other industries. He has perhaps suffered and is still suffering from endless propaganda trying to convince him that he is not and cannot be expected to be a "business man". In other words, it is a case of inferiority complex. But this is rapidly passing and I am here to advocate and urge that every Chamber of Commerce in Florida and throughout the country recognize that the farmer is a business man and is entitled to representation on a special agriculture committee of each Chamber, handled by the farmers themselves. A farmer who is not a business man has no more chance of success in farming than has a wholesale or retail merchant who is not a business man.

Agriculture by its very nature is more or less hazardous both as to production and markets. This is not necessarily a disadvantage but it does necessitate applying to the business the "law of averages". In spite of the supposed hazard of farming, we are still troubled with over-production. What would we have if these hazards did not exist? Agriculture must therefore be operated on a five and ten year average program. This is not a new Russian idea. We have followed it and many of the best farmers of the country have followed it for a score or more of years. The effort of all interested in agriculture should be toward eliminating this hazard by the application of the same principles and methods which make the insurance business a "business of risks" rather than a "risky business". This idea is particularly applicable to the Florida fruit and vegetable industry. On tomatoes, celery and many other vegetables, it is a common practice to diversify the plantings both as to the time of planting and as to planting on high and low lands, and in some other respects. The tendency of Florida growers, and among growers everywhere, is to over-expand, taking risks beyond their financial resources. In view of the fact that the risks are unavoidable and the business at best must experience more or less "ups and downs", growers must be urged to pursue a conservative course, get out of debt, build up some financial reserve, even at the expense of reducing acreage under cultivation. A business that enjoys such large profits occasionally carries with it a temptation to speculate or gamble, particularly when money to operate on can be secured from outside sources.

Cost of production, cost of transportation, cost of wholesale and retail distribution is coming down, whereas the demand for fruits and vegetables is steadily increasing because of the better understanding of diet, nutrition, etc.

Fruits and vegetables, being a finished product going direct to the consumer in the form in which they leave the Florida packing house, must of necessity measure up to the same high standing of quality and attractiveness which characterizes other merchandise. As far as practicable they must also be marketed on the same merchandising scale, including consumer advertising, which characterizes other successful merchandising. Problems of distribution are more or less similar to that of milk and bread. The demand while fluctuating is still more or less a constant demand, and the possibilities of improvement in merchandise advertising and distribution are very great, but the difficulties are equally great so that our marketing organizations small and great must be equipped to render not only the grower but also the consumer "satisfactory service". These distributing factors should function as clearing houses or other trade organizations do, to eliminate the abuses of competition and preserve the advantages of competition. It is just now becoming apparent that the old lines of marketing facilities in agriculture as well as in many other lines are more efficient than they are given credit for being.

At an annual meeting of the International Apple Shippers Association several years ago where some 1500 members were present from all over the United States and foreign countries, we had as speakers at the banquet a Catholic priest and a Presbyterian minister. The Catholic priest said he couldn't refuse an invitation to attend an apple meeting because, without the apple, he would not have had a job. The Presbyterian preacher later said that the Catholic Father was wrong and out of date; it was not an apple but a green pear that created human problems and incidentally the problems of agriculture. He also made the following comment: "I am delighted to see this large company of men coordinating their activities and cooperating so well." He further said that it is wonderful what can be accomplished when men pull together; that there were three men recently near Chicago who stopped a passenger train and removed all the valuables of the 100 passengers on the train. This was accomplished by an efficient plan, what can this great body of men accomplish by the use of the same method?

JOHN B. DYE SUCCEEDS GEORGE V. SAVITZ

Announcement is made by H. B. Taylor, vice-president of International Agricultural Corporation, of an important change in the personnel of the Jacksonville office of the Company.

John B. Dye has been named Division Sales Manager for Florida for International Agricultural Corporation, fertilizer manufacturers. This promotion comes after 20 years of service with the Corporation. He started with the company early in 1911, when its Florida division was organized as the Osceola Fertilizer Company; worked in various departments and is thoroughly familiar with all phases of the company's business; is well known among truck and citrus growers throughout the State, and succeeds Mr. Geo. V. Savitz, who has been transferred to the company's Boston, Mass., division as New England Sales Manager.

Fred D. Hopkins, formerly Credit Manager for the Fisk Tire & Rubber Company, Atlanta branch, and also well known to users of fertilizer in Florida, has been appointed Division Credit Manager, to fill the vacancy created by Mr. Dye's promotion.

The company's Florida office is located at 208 St. James Building, Jacksonville.

When writing advertisers please mention THE CITRUS INDUSTRY.

Profit For Grower Must Begin In Grove

By Joe Knight, Sans Souci Groves, Elfers, Florida

It appears to me that if a fair profit is to be made in the future and the citrus business of Florida made a success generally, that the growers will have to very materially cut down their expenses. The reason that growers have not been getting fair profits, is because the trouble lies as much, if not more, at this end than it does in the market. We have got to think and pay more attention to how cheaply we can produce our crop and less attention to how much we are going to get for it after it gets to market.

I can't see why the grower should wait and expect high prices for fruit —say $4.00, $5.00 per box. Certainly not in the near future, on an average, with our crop getting larger each year together with that of California and Texas. Because in the first place fruit is not worth this much, and in the second place, the country as a whole can't afford to pay this much. We have got to raise the best fruit possible and at the lowest possible cost, perfect a standard grade and pack and absolutely maintain it year after year.

The cost of packing, packing house materials, selling charges, etc., is way out of proportion compared to the price the markets are paying for fruit. And, I don't think, as many do, that over-production is altogether the cause of our trouble. On the other hand if all the growers were properly organized and the fruit properly distributed, with system and control, we probably would not fully supply the demand.

I am afraid that we don't pay enough attention to the smaller markets, etc. As much as half or more of Florida's crop has been sold in New York state in a year. We can't expect the situation over the country to change to suit ourselves, we will have to change our operations so as to balance our costs in proportion to the market conditions. A few years back a grower could make a fair profit, when fruit was selling for $1.75, $2.00 and $2.25 f. o. b., with the cost of crates at 13c to 15c, paper averaging 3c to 5c, packing and hauling of fruit at 35c and 40c selling and commission at 5c and 10c; freight and fertilizer about half what it is now as well as the general cost of grove operations. At that time, things were more balanced and fruit selling for $2.25 and $2.50 f. o. b. was a high price. And they were talking about over production then too. It looks like we may have to come back to this. At the present time, if the markets are paying but a limited price for fruit, then it is up to the grower to properly change his situation to proportionately balance, by reducing his costs. With our present costs of producing, packing, selling, etc., we must obtain a price for our fruit of $2.75 or $3.00 delivered to simply break even and must receive quite a bit more than this to make any kind of a fair profit at all. Of course this can't continue.

Numbers of splendid articles have appeared in many of our citrus papers and magazines of late, contributed by some of our best posted citrus authorities, which I have read with a great deal of interest and satisfaction, especially one by Dr. DeBusk in the Clearing House News of May 10th. I think it was a most sensible warning and most sound advice and that every grower should read it and let it soak in.

Probably we are doing quite a bit more spraying, dusting and cultivation than is necessary and in many cases the fertilizer is not properly applied—and much of it is wasted. As Mr. DeBusk says, fertilizer being the item of greatest expense in grove operations, the grower should start right now and begin to analyze this big item. It is very necessary that this be given a great deal of study. I have been carrying on certain fertilizer experiments on my groves at Sans Souci, in conjunction with a lysimeter, and hope to find in time that if certain fertilizer materials cannot be substituted for others, to reduce the cost of fertilizer, that I at least can increase my crop production. I think we could spot spray and spot dust more without reducing the percentage of first grade fruit and if the proper attention is given, a higher percentage of higher grade fruit may be possible. More cover crops and less cultivation may pay well. It may be that by excessive cultivation we are doing more damage than good by cutting many of the feeder roots. More cover crop and less cultivation may better condition of the trees as well as produce a better quality of fruit. I have found here that trees suffer more when cleanly cultivated, from a drought, than when they are not. Hoeing is a big item and I believe much of it can be cut out, for in many instances we possibly hoe too much and too thoroughly, doing

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MOST CENTRAL LOCATIONS
CHAS. B. GRINER, Manager

more damage than good.

The growers have got to seriously analyze their grove operations, cutting out all unnecessary operations and materially reducing the cost of their necessary operations. Packing house materials and costs, selling charges, etc. must come down. Fewer and better marketing and selling agencies must be had and charging less for their services. Maintaining the best standard grade and pack, with due consideration to the shipping of absolutely immature fruit.

More serious and thorough analyzing and more concentrated action at home might be a good thing to try out at this time.

Many housewives report that their work is reduced pratically one-half by having hot and cold water in the house.

When writing advertisers please mention THE CITRUS INDUSTRY.

Federal Scientists to Attack Florida's Citrus Fruit Ploblems

Federal chemists expect to start work in the new citrus by-products laboratory at Winter Haven, Fla., as soon as the building is completed, probably early in August, says Dr. W. W. Skinner, assistant chief of the chemical and technological unit of the Bureau of Chemistry and Soils, U. S. Department of Agriculture. The immediate program includes work on some of the most important problems affecting the Florida citrus industry.

H. H. von Loesecke, senior chemist of the unit, and formerly research chemist in charge of by-products and biochemical research for the United Fruit Company, at Boston, Mass., will be in charge of the new laboratory. Mr. von Loesecke recently left Washington for his new duties in Florida and plans an immediate study of methods of preserving orange and grapefruit juice, of developing orange and grapefruit by-products, and of utilizing orange and grapefruit wastes as stock and poultry feed.

Citrus growers of Florida and the Gulf States have long desired the same benefits which the California citrus industry has enjoyed from the work of the department's scientists at its laboratory in that State, and with this object, the quarters were made available at Winter Haven which is the geographical center of the Gulf citrus fruit belt.

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Four hundred thousand copies of the Yearbook are printed, under a special Congressional appropriation, and the distribution is largely by the Members of Congress. Persons who can not get a copy from a Senator or a Representative may purchase the Yearbook for $1.50 from the Superintendent of Documents, Government Printing Office, Washington, D. C.

In a foreword the Secretary of Agriculture, Arthur M. Hyde, says that farmers and research workers are partners in the task of shaping the agricultural industry to the most profitable and desirable ends. The Yearbook, he points out, is designed to facilitate contacts between farmers and research workers. It includes many articles of interest to non-agricultural readers. Of general interest are articles on economic subjects, on highway construction, on the administration of regulatory laws, and on home economics. The volume reports recent progress in meteorology and in the utilization of agricultural by-products through chemical research. There are several articles on the 1930 drought.

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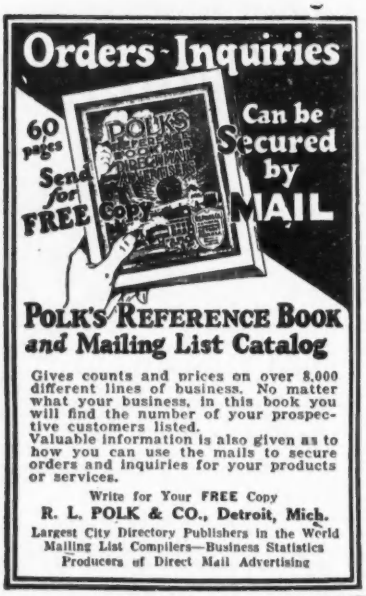

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